DOCUMENT RESUME

ED 265 133 SP 027 014

AUTHOR	Murray, David R.
TITLE	Conditions of Teacher Education in the Commonwealth of Kentucky: A Special Report on Estimating Supply/Demand and Related Issues.
PUB DATE	85
NOTE	157p.
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01/PC07 Plus Postage.
DESCRIPTORS	Elementary Secondary Education; *Enrollment Trends; Faculty Mobility; Higher Education; *Preservice Teacher Education; *Public School Teachers; School Demography; *Teacher Employment; Teacher Shortage; *Teacher Supply and Demand
IDENTIFIERS	*Kentucky

ABSTRACT

This report provides a general overview of the supply and demand of public school teachers in the Commonwealth of Kentucky. Both actual data for 1980-85 and projected estimates for 1986 to 1990 were provided. Intrinsic to the study was a comprehensive analysis of actual and projected enrollment trends; a close review of teacher availability; an exploration of the demand and supply relationships and related issues influencing current and future conditions in teacher education. Surpluses and shortages were identified for elementary education, special areas, and secondary education by teaching areas. Contingency plans for a possible teacher shortage are also discussed. Thirteen appendces include data on enrollments and on student teacher ratios for special subject areas; data on demand and new hires and supply versus demand by field and region; new teachers analysis; age distribution of Kentucky teachers by totals; and average teacher salaries in elementary, secondary and combined Kentucky schools. (Author/LR)

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CONDITIONS OF TEACHER EDUCATION IN THE COMMONWEALTH OF KENTUCKY

A SPECIAL REPORT ON ESTIMATING TEACHER SUPPLY/DEMAND AND RELATED ISSUES

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INTRODUCTION

INTRODUCTION

In recent history, concerns about education as a viable enterprise have surfaced and continue to be a focal point at both the national and state levels. Perhaps the best known effort to address public concerns was the U. S. Department of Education's report, A Nation At Risk. A variety of issues concerning teaching and learning quality and other related conditions were given particular attention. Both findings and recommendations were cited to stimulate much needed reforms.

In a similar light, a report entitled In Pursuit of Excellence developed by the original Prichard Committee identified many of the quality issues facing education in the Commonwealth of Kentucky. These reports, and many others of a similar nature, address a variety of issues on the quality of education and make recommendations that are vital to the future growth and development of our nation's human resources.

Although quality education and the ever-widening issues in teacher preparation are of great concern, recent demographic trends may compound the present conditions and create even greater problems. In some areas of the country, supply and demand imbalances for teachers are emerging, particularly in specific critical areas such as mathematics, science, and vocational education (Watkins, 1981). There has been a steady reduction of enrollments in our teacher education programs across the country; and, therefore the number of new teachers preparing for the profession has been reduced. In addition, there is an exodus pattern of teachers leaving the profession in many academic areas

(The National Center for Education Statistics, 1983). Teacher availability is recognized by the Council on Higher Education as an issue that may directly or indirectly affect the quality of life in the Commonwealth of Kentucky and therefore should be a subject for ongoing review.

Purpose of the Study:

The major purpose of this study was to present overview of the various conditions that exist in the area of teacher education. Intrinsic to this study was a comprehensive analysis of actual and projected enrollment trends; a close review of teacher availability; an exploration of demand and supply relationships; and, finally, an examination of other related issues which may have a direct influence on current and future conditions in teacher education. Information produced by this study should provide both a quantitative and a qualitative base on which to formulate policy.

Project Objectives:

- To review the historical and current trends in teacher education as they relate to future developments and/or growth potential of the field;
- To provide an overview of enrollment trends in public schools within the Commonwealth of Kentucky;
- To determine current and projected teacher demand based on an analysis of student/teacher ratios;
- To review current supply and to project future staffing

needs by a thorough analysis of new certificate holders and bachelors degrees conferred in teacher education from Kentucky institutions of higher education;

- To provide a comparative analysis of supply vs. demand by teaching area and level of teaching assignment;
- To review major quality issues and how they affect future availability of teachers for service in public schools throughout the Commonwealth of Kentucky;
- To summarize the general findings of the report and to make recommendations for possible consideration in future policy decisions in teacher education.

KEY DEFINITIONS:

Actual Enrollment: Historical and current data based on actual enrollment counts.

Certified Teacher: A licensed professional with preparation in an area of teacher education.

Demand: The number of teachers needed to fill all teaching positions within the public school system.

Newly Certified Teachers: Teacher candidates recently certified in a discipline or area.

Projected Enrollment: Estimated future enrollment based on existing conditions by the use of a scientific projection method.

Supply: The number of qualified teachers including teachers presently teaching, newly certified teachers, and teachers in the reserve pool.

Teacher Openings: Number of teaching positions open and providing the basis for hiring teachers.

Teacher Reserve Pool: Certified teachers within the state not engaged in teaching at the present time.

Vacancies: Losses from the current employed teacher force due to retirement, death, moving to another location or leaving the profession of teaching.

Vacancy Rate: The percentage of currently employed teachers who leave teaching between two different points of time.

ASSUMPTIONS:

In order to project future conditions with any sense of accuracy, certain assumptions concerning historical trends and current conditions must be made. For example, it is assumed that the data provided to the Council on Higher Education by agencies, school systems and institutions of higher education are accurate.

Environmental conditions related to present and future demand and supply will not change to any great extent. These components include the economic environment in Kentucky, public school staffing patterns, and the percent of students attending private schools will not drastically increase.

It is assumed that should the student/teacher ratios be altered by legislation, the demand for teachers will also increase or decrease accordingly. For example, should the student/teacher ratio be reduced, the demand for teachers will increase. Should the demand increase in areas where shortages are identified or should the demand increase in marginal areas, it is assumed that these shortages will become more acute.

There is an assumption that should contingency plans adopted by the Teacher Education and Certification Council be implemented, projected estimates on shortages will be addressed and therefore change.

Finally, it is assumed that projected supply and demand figures are representative of the best possible circumstances and are considered to be speculative estimates that generally define ranges between upper and lower limits.

LIMITATIONS:

Only two years of usable data on teacher certification were available for projecting the number of future teacher candidates. As there was a correlation between the number of degrees conferred from Kentucky institutions of higher education and the number of teachers receiving certification in the Commonwealth, data on degrees conferred were used to determine the speculative estimates.

As private elementary and secondary schools are not part of the foundation program and therefore are not required to provide staffing patterns to adhere to pre-defined student/teacher ratios, private elementary and secondary schools were not included in the speculative estimates. Also, in many cases private schools do not necessarily employ certified teachers.

ENROLLMENT TRENDS

Educational Demographics:

The actual annual number of births plays a dominant role in determining the future size of school age populations. Enrollments in elementary and secondary school populations in particular, can be accurately projected. The population enrolled in kindergarten through the eighth grade provides a near representation of children ranging in age from 5 to 13 years of age. The same can generally be said for grades 9-12. This population, for the most part, represents the 14 to 17 year old age group.

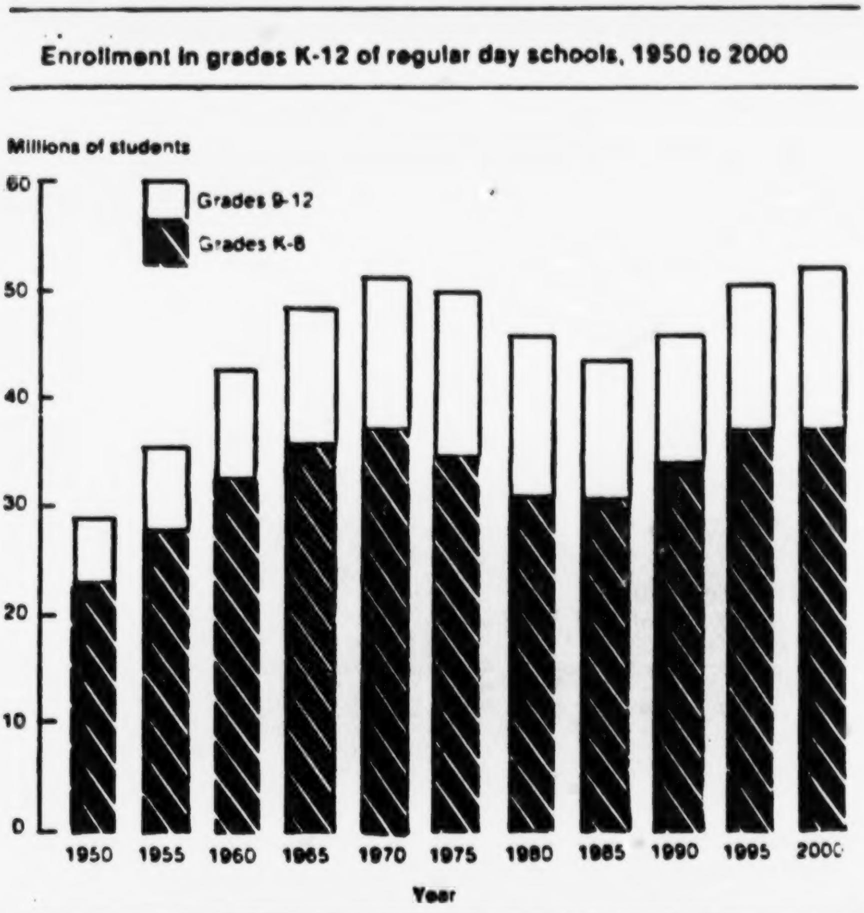
With the ending of World War II in 1945, the population of the United States experienced a sudden surge of births. Nationally, the birth rate climbed from 2.9 million to 3.9 million by the close of 1946. Over the next ten years, the birth rate rose steadily to 4.3 million. From this point, the level of births remained approximately the same until 1960. The major enrollment boom in American school systems began in 1952, as the first group of children of the post World War II era entered the first grade. The large increases in enrollment would continue throughout two decades. The increases average more than 1.3 million new students per year between 1950 and 1965. (Refer to Figure 1.) By 1960, this same population began to enter high school. Enrollment at the secondary level steadily increased until 1970, when the total student population peaked at 51.3 million.

Increases in college and university enrollment rates began to be observed in 1964 as students born in 1946 began to enter institutions of higher education. The population of college age students expanded throughout the decades of the 1960's and 1970's. This "baby boom" generation will continue to have a major impact on enrollments at all levels throughout the 1980's.

The "baby boom" population will be between 25 and 44 years of age by 1990, and it is predicted that older students will represent approximately 47 percent of the students enrolled in institutions of higher education as we enter the decade of the 1990's (Frankel and Gerald, 1982). This generation's children will also provide moderate increases in elementary school enrollment during the same time period. This upswing in annual births suggests a need to plan for future enrollment increases.

Figure 1

National Enrollment Trends



Source: National Center for Education Statistics

The Kentucky birth rate paralleled the national pattern. At the end of World War II, registered 60,377 resident births, and shortly after, in 1947, Kentucky recorded 79,890 births. Throughout the decade of the fifties, the births remained fairly constant, leveling off at around 75,000, considerably higher than the average birth rate of the early forties.

By the mid-sixties a downward trend became evident. From 1960 to 1969 the birth rate declined steadily from 73,680 to

57,443. An upward trend in births became apparent again in the late seventies. In 1980, the birth rate peaked at 59,550 and slowly decreased to 54,023 in 1983.

Likewise, enrollment in Kentucky public schools reflected similar trends. Since Kentucky did not have mandatory kindergarten, the "baby boom" population entered the public school system in 1951. From 1951 to 1952 enrollment increased by 13,634. Enrollment continued to climb throughout the next three decades. Public school enrollment reached an apex in 1976 at 696,740 students. From that point on enrollment began to decline steadily.

Enrollment in Public Schools:

This report illustrates the changes in enrollment from 1980 to 1985 and projects possible school enrollment from 1985 to 1990. These data show a change in trends from decreasing enrollments to a gradual increase which began to appear in 1983 at the elementary level. Nationally, experts expect that an enrollment increase should continue well into the 1990's. In fact, a national enrollment boom is projected that may surpass the peak level of the 1970s (Frankel and Gerald, 1982).

A comparison of what actually happened in Kentucky in regard to enrollment and what is expected to happen over the next five years is of major interest because enrollment trends have a direct effect on the demand for teachers.

Overview of Methodology:

Historical data reflecting actual enrollment from 1980 to 1985 was provided to the Council on Higher Education by the Kentucky Department of Education. Although the decline of student enrollment began in the decade of the seventies, only data from the last five years were used to project the next five years. After an intensive review of the related literature, it was found that the cohort-survival technique or a modification of this technique was used by many state agencies in similar studies to project enrollment (Frankel, 1981). This technique was considered to be the most scientific technique by the Kentucky Department of Education. (Daviess and Trimble, 1980). Generally, the technique involves using a recent five year period to determine a value to be used in projecting the size of the first grade class of the immediate future. The average of births-to-first grade survival rates for the past five years was the value used. A birth-to-first grade survival rate was calculated by dividing a given first grade enrollment by the number of live resident births six years earlier. The average survival rate was then multiplied by the live resident births of the previous years to obtain the projected first grade enrollments for projected years. It has been suggested that this procedure be used to project no more than a five year period (Daviess and Trimble, 1980). The results of the Kentucky Department of Education findings are presented in graphic form in Tables 1, 2, 3 and 4.

Data representing historical trends in enrollment from the beginning of 1980 to the end of 1985 were collected each year.

These data were then used as a basis to project enrollment for the years 1985 to 1990. For easier analysis, enrollment figures were divided into two levels. These levels consisted of the elementary level (grades K-6), and the secondary level (grades 7-12). These levels tend to reflect organizational patterns as well as approximate areas of teacher certification in most states. Special education was added as a third area because special self-contained classes exist at both elementary and secondary levels.

Elementary Enrollment (grades K-6):

Enrollments at the elementary level in Kentucky have experienced major declines over a number of years. During the period of the early 1980's, this decline began to taper off. Kentucky witnessed an average 1.05 percent decline for the academic years 1980-81 to 1984-85.

The 1984 legislative session enacted Senate Bill 26 which required kindergarten as a prerequisite for entrance into the first grade in public schools. This law became effective for the 1985-86 school year. This legislation coupled with moderate increases in birth rates brought about a major increase in projected enrollments. It is projected that a 4 percent increase should be realized in the fall of 1985. This should be followed by moderate increases in enrollment to the end of 1988, when it is projected to decline slightly, as can be seen in Tables 1 and 2.

TABLE 1

ACTUAL ENROLLMENT CHANGE
ELEMENTARY LEVEL: GRADES K-6

Year	Enrollment	Difference	Percent of Change
1980-81	349295		
1981-82	344774	- 4521	- 1.29
1982-83	342034	- 2740	- 0.79
1983-84	337821	- 4213	- 1.52
1984-85	335835	- 1986	- 0.59
			Avg. % = -1.05

TABLE 2

PROJECT ENROLLMENT CHANGE
ELEMENTARY LEVEL: GRADES K-6

Year	Enrollment	Difference	Percent of Change
1985-86	348983	+ 13148	+ 3.92
1986-87	352768	+ 3785	+ 1.07
1987-88	353662	+ 894	+ 0.25
1988-89	352773	- 889	- 0.25
1989-90	349800	- 2973	- 0.85
			Avg. % = 1.27

Migration patterns often have a large impact on school enrollments. Industries moving into the southern region of the country may bring younger children into the state. At present, the Commonwealth of Kentucky is making major efforts to attract industries. Should the state be successful, parents of younger children and prospective parents will move into the state and this would make significant changes in the projected enrollment profile.

Secondary School Enrollments (Grades 7-12):

Patterns at the national level appear to suggest that secondary grades will be experiencing major enrollment declines. High school enrollment (grades 9-12) in particular, is expected to drop to 12.1 million, an average annual decrease of 300,000 students (Frankel, 1981).

These downward trends at the secondary level appear to be similar in the Kentucky public school systems. For the most part, secondary enrollments in Kentucky have systematically declined over the last decade. From 1980 to 1984 enrollments at this level in Kentucky public schools have experienced an average decline of 1.08 percent. (Refer to Table 3.) Although enrollments between 1983 and 1985 remained somewhat stable, enrollment projections will continue on a downward trend. Actual and projected enrollment trends for the secondary level can be observed in Table 3 and 4. As the offspring of the "baby boom" generation who began school in the early and mid-1980's mature, secondary enrollment should climb to higher levels in the earlier part of the 1990's.

TABLE 3

ACTUAL ENROLLMENT CHANGE
SECONDARY LEVEL: GRADES 7-12

Year	Enrollment	Difference	Percent of Change
1980-81	306144		
1981-82	300832	- 5312	-1.74
1982-83	295814	- 5018	-1.67
1983-84	297364	1550	0.52
1984-85	296214	- 1150	-0.39
			Avg. % = 1.08

TABLE 4

PROJECTED ENROLLMENT CHANGE
SECONDARY LEVEL: GRADES 7-12

Year	Enrollment	Difference	Percent of Change
1985-86	291335	- 4879	- 1.65
1986-87	283368	- 7967	- 2.74
1987-88	278037	- 5331	- 1.88
1988-89	271160	- 6877	- 2.47
1989-90	267303	- 3857	- 1.42
			Avg. % = 2.03

Other Factors Influencing Enrollments:

The National Center for Educational Statistics indicates that over the next decade, an increasing number of high school students may leave the traditional high school setting and seek high school equivalency credentials. The authors further indicate that this pattern may increase as much as 24 percent as the equivalency diploma becomes a more acceptable alternative in the labor market across the nation. The American Council on Higher Education reported that adult populations may also elect to complete the requirements for the equivalency diploma for personal or job related reasons. (Frankel and Gerald, 1982.) This may have an even greater impact on the Commonwealth because Kentucky ranks

50th among all states in high school graduates: only 53.1 percent of adults over 25 years of age are high school graduates (U.S. Census Bureau, 1980). Minimal competency tests may also cause additional decreases in the number of traditional high school graduates.

Special Education Legislation:

National legislation was enacted to insure that all handicapped children had equal opportunity to education. Public Law 94-142 no doubt had some effects and influenced enrollments in special education classes in Kentucky as it did nationally. (Enrollments in special education can be observed in Tables 5 and 6.)

TABLE 5

ACTUAL ENROLLMENTS
ELEMENTARY, SECONDARY AND SPECIAL EDUCATION
PUBLIC SCHOOLS GRADES (K-12)

Year	Grades: (K-6)	Grades: (7-12)	Special Education	Total
1980-81	349,295	306,144	13,833	669,272
1981-82	344,774	300,832	12,744	658,350
1982-83	342,034	295,814	12,520	650,368
1983-84	337,821	297,364	12,930	648,115
1984-85	335,835	296,214	12,372	644,421

TABLE 6

PROJECTED ENROLLMENTS
ELEMENTARY, SECONDARY AND SPECIAL EDUCATION
PUBLIC SCHOOLS GRADES (K-12)

Year	Grades: (K-6)	Grades: (7-12)	Special Education	Total
1985-86	348,983	291,335	12,500	652,818
1986-87	352,768	283,368	12,500	648,636
1987-88	353,662	278,037	12,500	644,199
1988-89	352,773	271,160	12,500	636,433
1989-90	349,800	267,303	12,500	629,603

General Enrollment Conditions:

Enrollment trends at the elementary and secondary schools have been examined. With the exception of the lower level elementary grades, enrollments within the public schools will continue to reflect downward trends for the rest of the decade. Refer to tables 5 and 6. Other legislation influencing enrollments include Public Law 94-142 (the Education for All Handicapped Children Act) and of Kentucky Senate Bill 62 which mandates kindergarten as a requirement for entrance into first grade in public schools.

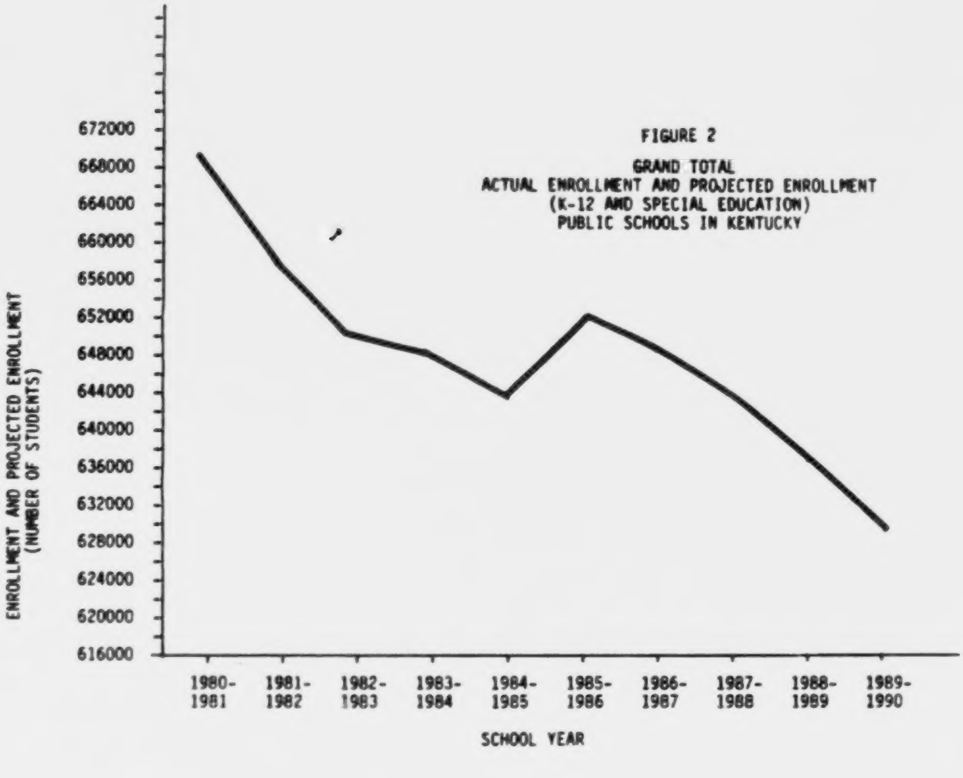
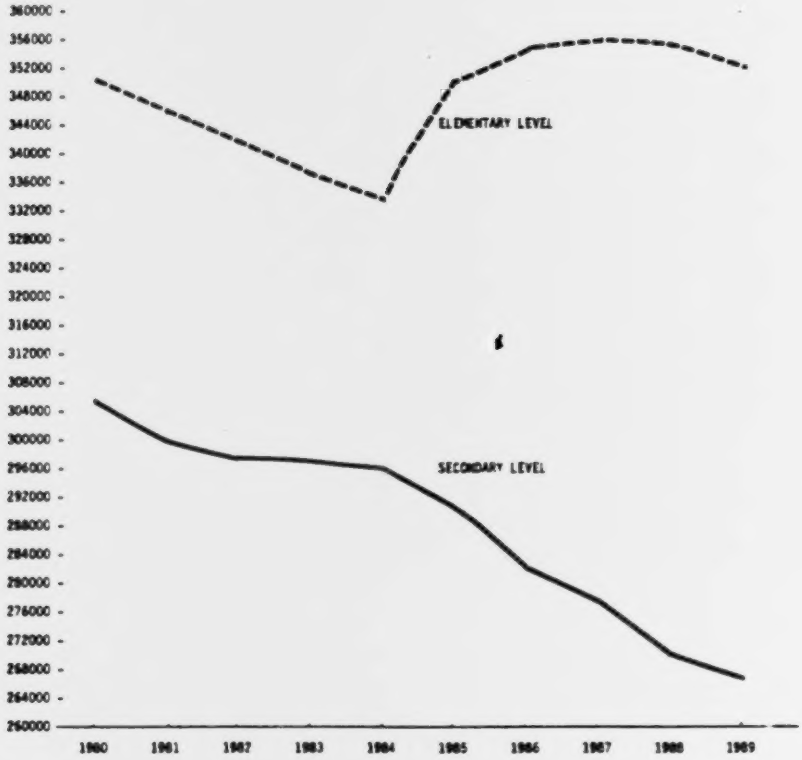


FIGURE 2

GRAND TOTAL
ACTUAL ENROLLMENT AND PROJECTED ENROLLMENT
(K-12 AND SPECIAL EDUCATION)
PUBLIC SCHOOLS IN KENTUCKY

FIGURE 3

ACTUAL AND PROJECTED ENROLLMENTS
ELEMENTARY AND SECONDARY
PUBLIC SCHOOLS IN KENTUCKY GRADES (K-12)



As the enrollment growth pattern observed in the elementary schools moves into the lower secondary or middle grades at the end of 1987, opportunities for junior high at that level should begin to improve. A graphic representation of elementary (K-5), middle school (6-8) and secondary grade (9-12) enrollments can be observed in Appendix I. Opportunities will also occur at the high school level when this population extends its growth into that environment at the beginning of the 1990s.

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Private School Enrollments:

Enrollments in Kentucky's private schools historically have remained fairly consistent representing only about 10 percent of the total population of students in grades kindergarten through 12th grade. (Refer to Appendix II.) Generally private school enrollment at the elementary level (K-6) represents 11 percent; special education students represent approximately 8 percent; and secondary enrollment represent approximately 9 percent. Refer to Appendices II for actual and projected private school enrollment by year and teaching level.

Private schools are not subject to many of the requirements that public schools must adhere to. For example, private school teachers may not necessarily be required to be certified teachers. Also, as private schools are not a part of the foundation program and do not receive public funding, they are not required to adhere to predefined student-teacher ratios. Therefore, enrollment data for private schools will be noted but not used to determine future demand projections.

TEACHER DEMAND

TEACHER DEMAND

Historical Overview:

Teacher demand may be defined as the number of teachers needed to fill all teaching positions within the public school system. Historically, a number of these positions have been determined by the allotment of classroom units under the direction of the Superintendent of Public Instruction. This allotment, in turn, is defined by the General Assembly of the Commonwealth of Kentucky.

The allotment of classroom units is directly tied to funding appropriations and the overall state support of public education. The purpose of the statute (Kentucky Revised Statute 157.360) was strongly approved by the legislative body in that it clearly states, "It is the intention of the General Assembly that school districts shall adhere to class sizes upon which funding is based."

Maximum Student-Teacher Ratios:

The present student-teacher ratios are established by the Kentucky General Assembly under Kentucky Revised Statute 157.360, entitled Allotment of Classroom Units by Superintendent of Public Instruction; Enforcement of Maximum Classroom Sizes. As in previous legislation, this statute defines provisions for the Superintendent of Public Instruction to determine the cost of the foundation program for each public school district classroom unit. Within this legislation, a classroom unit shall include twenty-five (25) kindergarten full-time equivalent students in average daily attendance; twenty-five (25) students in average daily attendance in grades one (1) through three (3); and twenty-seven (27) students in average daily attendance in grades four (4) through twelve (12). The absolute upper limits or maximum number of students enrolled for every academic course requirement shall be calculated by adding four (4) to the average daily attendance figure upon which funding of the classroom unit is appropriated by the biennial budget. Individual allotments are allowed for the special areas of elementary art, music, physical education, special education, and vocational education based on the number of teachers employed.

Overview of the Methodology:

The data concerning personnel employed in the public schools in the Commonwealth of Kentucky are compiled on an annual basis by the Kentucky Department of Education. During the fall semester of each year, teachers are requested to fill out the Professional Staff Data (PSD) form. This form is then used to compile frequency data. (Professional staff include classroom teachers, administrators, and other professional support personnel.) Information compiled includes primary position assignment status, years of experience, educational institution awarding highest degree, and school district where employed.

Data obtained from the PSD survey was reviewed for the academic years 1980-81 through 1984-85. Efforts were made to identify and isolate data which pertained to the classroom teachers. For the purpose of this study, the classroom teacher will be the major population under consideration. Administrators and other support personnel were excluded.

Tables were then generated to compare employment data of classroom teachers with actual and projected student enrollments.

Teacher demand was calculated for all teaching positions in the public school sector of the Commonwealth of Kentucky. These calculations included an overview of the current trends for 1980 through 1984 and projected trends for 1985-1990. Teacher demand was projected by applying predefined student/teacher ratios to projected enrollment figures.

All projections were determined by using the exponential smoothing technique. This technique is used to determine a forecasting average. Conceptually, this technique applies more weight to the most recently observed values and decreasing weight to earlier values (Wheelwright and Makridakis, 1973). This technique is used when the more recent values are deemed to be more reflective of future trends.

Since the Kentucky Revised Statute 157.360 describing student/teacher ratios provides both a base enrollment definition of a public school classroom unit and a maximum acceptable enrollment limit, it was decided to present teacher demand projections including lower limit student/teacher ratios and upper limit student/teacher ratios. A mean was also calculated so that an average profile of teacher demand could be graphically presented. As the grade levels K-6 were subdivided to include the lower limits for grades K-3 to be twenty-five (25) students and grades 4-6 to be twenty-seven (27) students, an average of 25.86 to 1 ratio was used to calculate the lower limits for teacher demand. Upper limits were identified by using an average of 29.86 to 1. This average was determined by using the maximum enrollment allowed for grades K-3 of 29 students and the maximum enrollment for grades 4-6 of 31 students. In the same manner, lower limits for grades 7-12 were established by using the base enrollment figure of twenty-seven (27). Upper limits were calculated using a maximum class size of thirty-one (31).

Teacher demand was grouped by elementary grades K-6, by secondary grades 7-12 and by special subject area. Special subject area teachers were identified to be teachers for whom no teacher/pupil ratios were identified. This includes special education and vocational education where money is allotted for each classroom unit by the number of teachers employed and elementary special area teachers (music, art and health and physical education) where no teacher/pupil ratios were specified by the foundation program.

Teacher demand was also determined by teaching area. This will allow identification of secondary subject areas with a possible teacher surplus or shortage.

Teacher vacancies were also generated for each group and by teaching area. Within a given area, the vacancy rate was calculated by dividing the number of newly hired teachers for a specific year by the total number of teachers for a previous year. The projected vacancy rate was calculated by applying the exponential smoothing technique to the teacher vacancy rates for the 1980-84 period.

Finally, projected openings by group and teaching area were estimated. Both openings due to vacancies and growth were determined. Within a given area, openings due to growth were calculated by subtracting teacher demand for a given year from teacher demand for the following year. Openings due to vacancies were calculated by multiplying the projected vacancy rate for a given year by the number of teachers employed for a previous year. Growth and vacancies were then added together to determine the total number of projected openings.

TEACHER DEMAND:

Elementary Level (Grades K-6):

Over the last five years, student enrollments in grades K-6 declined slightly from 349,295 in 1980-81 to 335,835 during the 1984-85 academic year. The number of teachers employed in Kentucky public schools at the elementary level also declined until 1984 when a slight increase was observed. Table 7 exhibits these data by showing the upper and lower limits of teacher demand as well as the actual number of teachers employed.

TABLE 7

CURRENT TEACHER DEMAND
ELEMENTARY LEVEL: GRADES K-6

Year	Student Enrollment	Upper Limit Teacher Demand[1]	Lower Limit Teacher Demand[2]	Number Employed
1980-81	349295	11698	13507	11809
1981-82	344774	11546	13332	11502
1982-83	342034	11455	13226	11438
1983-84	337821	11313	13063	11377
1984-85	335835	11247	12987	11573

Table is rounded to nearest integer
[1] Upper limit is based on 29.86 to 1 ratio
[2] Lower limit is based on 25.86 to 1 ratio

Even though the actual number of teachers employed generally fell within the range of required teachers as defined by Kentucky statute, the number appears to be close to the highest student/teacher ratio (upper limit) allowed by law. This may be due to the fact that data provided for elementary level teachers only included self contained classroom teachers. However, in many cases, sixth grade students are taught by subject area teachers rather than by a self contained classroom teacher. Consequently, the subject area teachers responsible for sixth grade students are included in secondary level data. In 1985 a new three-level certification system which includes a middle school certificate will be implemented. The new middle school certificate will be awarded by subject area. Therefore, it was deemed appropriate to include non self-contained sixth grade teachers with the secondary areas.

Projected teacher demand for the elementary level shows a substantial increase for the 1985-86 school year. This can be attributed, in part, to the projected increase in enrollment brought about by Senate Bill 62 which requires mandatory kindergarten beginning in 1985, resulting in increased enrollment in 1985-86. An increase is projected to continue for the next three years, 1985-86 through 1987-88. Since the birth rate began to decline slightly in 1983 there should be a leveling off in teacher demand for 1988-89 and 1989-90 when these children enter school. These trends may be observed in Table 8.

TABLE 8

PROJECTED TEACHER DEMAND
ELEMENTARY LEVEL: GRADES K-6

Year	Student Enrollment	Upper Limit Teacher Demand[1]	Lower Limit Teacher Demand[2]	Mean Demand
1985-86	348983	11687	13495	12591
1986-87	352768	11814	13641	12728
1987-88	353662	11844	13676	12760
1988-89	352773	11814	13642	12728
1989-90	349800	11715	13527	12621

Table is rounded to nearest integer
[1] Upper Limit is based on 29.86 to 1 ratio
[2] Lower Limit is based on 25.86 to 1 ratio

Secondary Level (Grades 7-12):

The secondary level grades reflect a gradual downward trend in enrollment. Although the number of teachers employed generally reflects this downward trend as well, the actual number of teachers employed in 1984-85 increased. (Refer to Table 9.) This increase may be attributed to the recent Kentucky statute which mandated enforcement of the student/teacher ratios.

TABLE 9

TEACHER DEMAND
SECONDARY LEVEL: GRADES 7-12

Year	Student Enrollment	Upper Limit Teacher Demand[1]	Lower Limit Teacher Demand[2]	Number Employed
1980-81	306144	9876	11339	11916
1981-82	300832	9704	11142	11411
1982-83	295814	9542	10956	11193
1983-84	297364	9592	11013	10874
1984-85	296214	9555	10971	11234

Table is rounded to the nearest integer

[1] Upper Limit is based on 31 to 1 ratio

[2] Lower limit is based on 27 to 1 ratio

Observations also show that the number of teachers employed somewhat exceed the number of teachers required by state law. This, again, may be a direct result of subject area teachers who are responsible for sixth grade students being accounted for at the secondary level rather than at the elementary level.

Secondary level enrollments are projected to decline until the end of the decade, thus reducing the demand for secondary teachers. (Refer to Table 10.)

TABLE 10

PROJECTED TEACHER DEMAND
SECONDARY LEVEL: GRADES 7-12

Year	Student Enrollment	Upper Limit Teacher Demand[1]	Lower Limit Teacher Demand[2]	Mean Demand
1985-86	291335	9398	10790	10094
1986-87	283368	9141	10495	9818
1987-88	278037	8969	10298	9634
1988-89	271160	8747	10043	9395
1989-90	267303	8623	9900	9262

Table is rounded to the nearest integer

[1] Upper limit is based on 31 to 1 ratio

[2] Lower limit is based on 27 to 1 ratio

Special Area:

Special area teacher demand, as defined earlier, includes teaching areas where no student/teacher ratios are specified by law. These areas include elementary art, music, physical education, special education and vocational education. Current teacher demand in special areas is presented in Table 11.

TABLE 11

CURRENT TEACHER DEMAND
SPECIAL AREA

Year	1980-81	1981-82	1982-83	1983-84	1984-85
Elem. P.E.	507	479	477	652	663
Elem. Art	160	162	164	336	394
Elem. Music	600	591	573	640	690
Special Ed.	4077	4099	4144	4228	4181
Vocational Ed.	2978	3013	3124	3250	3050
Total	8322	8344	8482	9106	8978

Projected teacher demand by special area was calculated by determining the student/teacher ratio for each special area for each year. A forecasting ratio was then determined by applying the exponential smoothing technique to the calculated ratios. Since no student/teacher ratio is specified by law, no lower and upper limit ratios were calculated. (Refer to Appendix III.) The projected number of special area teachers was determined by dividing the projected enrollment figure by the derived special area student/teacher ratio. These data are summarized in Table 12.

When generating the projected ratios for elementary art, music, and physical education, some modifications had to be made.

Upon reviewing current employment data in these areas, a significant increase in the number of teachers employed was observed during the academic year 1983-84. Officials of the Kentucky Department of Education indicated that these increases were a result of school districts complying with recent weaknesses identified by the accreditation process. Therefore, only the data provided for the last two years in these special areas was used to project future teacher demand in the same areas. Data obtained for the last five years were used to project special education and vocational education.

TABLE 12
PROJECTED TEACHER DEMAND
SPECIAL AREA

Year	1985-86	1986-87	1987-88	1988-89	1989-90
Elem. P.E.	683	690	692	690	685
Elem. Art	384	388	389	388	385
Elem. Music	695	703	705	703	697
Special Ed.	4167	4167	4167	4167	4167
Vocational Ed.	3003	2921	2866	2796	2756
Total	8932	8869	8819	8744	8690

Teaching Areas:

Current and projected teacher demand for secondary subject areas was also determined. Data acquired from PSD forms provided a count of teachers for each specific teaching area. These data, along with all other teaching areas such as elementary self-contained teachers and special education teachers may be observed in Table 13. Generic areas such as art, music, and physical education, contain a tally of both elementary and secondary teachers.

TABLE 13
CURRENT DEMAND
BY TEACHING AREA

Year Area	1980-81	1981-82	1982-83	1983-84	1984-85
Elem. Self Contained	11809	11502	11438	11377	11573
Other Self Contained	449	404	406	361	240
Special Ed.	4077	4099	4144	4228	4181
Science	1747	1659	1645	1591	1675
Math	2240	2137	2126	2003	2082
Soc. Sc.	1733	1728	1685	1594	1626
English	2489	2467	2467	2283	2418
Foreign Language	285	269	275	269	362
Music	939	910	893	992	1072
Art	469	455	451	693	789
Distrib.	122	111	97	68	67
Business	818	802	819	882	875
Indust.	556	546	532	530	527
Agriculture	277	271	263	266	256
Health-PE	1349	1293	1281	1623	1623
Home Ec.	606	589	513	521	505
Other	1551	1531	1617	1627	1439
Total	31,516	30,773	30,652	30,908	31,310

Other: Core, driver education, public service, military science, other, misc., health care, practical arts, spec. vocational ed.

Enrollment data were not available for specific subject area classes at the secondary level. Therefore, projected teacher demand by secondary teaching areas were calculated by determining the percentage of secondary teachers employed for each teaching area for each year. (Refer to Appendix IV.) Then the exponential smoothing technique was applied to these percentages to estimate future teacher demand for each subject area. Total projected teacher demand for all teaching areas is displayed in Table 14.

TABLE 14

PROJECTED TEACHER DEMAND
TEACHING AREA

	1985-86		1986-87		1987-88		1988-89		1989-90	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Elem. Self Contained	11687	13495	11814	13641	11844	13676	11814	13642	11715	13527
Other Self Contained	291	324	284	315	278	309	271	302	267	297
Special Ed.	4167	4167	4167	4167	4167	4167	4167	4167	4167	4167
Science	1437	1599	1398	1555	1372	1526	1338	1488	1319	1467
Math	1819	2023	1769	1968	1736	1931	1693	1883	1669	1857
Social Science	1432	1593	1393	1550	1367	1520	1333	1483	1314	1462
English	2090	2324	2032	2261	1994	2218	1945	2163	1917	2133
Foreign Lang.	267	297	259	288	255	283	248	276	245	272
Music	999	1033	999	1032	995	1028	986	1018	976	1007
Art	682	715	677	710	673	705	665	696	658	689
Dist. Ed.	74	83	72	81	71	79	69	77	68	76
Business	733	815	713	793	699	778	682	759	673	748
Indust. Art	461	513	449	499	440	490	429	478	423	471
Agriculture	228	254	222	247	218	242	212	236	209	233
Health-P.E.	1459	1546	1445	1530	1433	1516	1413	1494	1397	1477
Home Ec.	463	515	450	500	441	491	431	479	424	472
Other	1315	1462	1279	1422	1256	1395	1223	1361	1206	1342
Total	29604	32758	29422	32559	29239	32354	28919	32002	28647	31,697

Teacher Vacancies:

Teacher vacancies as well as increases in student enrollment have a major impact on the number of new teachers hired each year. Teacher vacancies have been identified as a major concern as it appears to be on the increase nationwide.

Teacher vacancies were determined by examining the number of new teachers hired each year over a five year period. These data were provided by the Kentucky Department of Education. The newly hired teachers' categories include first-time teachers, returning teachers and those classified as other. It does not include teachers who have transferred from one school to another.

Both the actual number of new teachers hired and the percent of the total number of teachers employed for each level and area are presented. Vacancy rates were determined by dividing the total number of new hires, for a given year by the total number of teachers employed for the previous year. The projected vacancy rate is calculated by applying the exponential smoothing technique to these percentages. Tables 15 and 16 show the trends in teacher vacancies for the elementary and secondary levels.

TABLE 15

TEACHER VACANCIES BY NUMBER
AND BY RATE (ELEMENTARY LEVEL K-6)

Year	No. of Vacancies	Percent	Projected Rate
1980-81	658	5.59	
1981-82	464	3.93	
1982-83	501	4.36	
1983-84	516	4.51	
1984-85	707	6.21	
			5.24

TABLE 16

TEACHER VACANCIES BY NUMBER
AND BY RATE (SECONDARY LEVEL 7-12)

Year	No. of Vacancies	Percent	Projected Rate
1980-81	693	5.50	
1981-82	440	3.69	
1982-83	499	4.37	
1983-84	575	5.14	
1984-85	701	6.45	
			5.40

Elementary (Grades K-6) and Secondary (Grades 7-12) Levels:

In 1980-81, vacancy rates for the elementary level (5.59) and the secondary level (5.50) were fairly high. For the academic years 1981-82 through 1982-83 the rates began to decline. Then, in 1983-84, the vacancy rates started to increase again and appear to be continuing in this direction. The years in which a decline was observed parallel the years of the national economic recession. This may have directly contributed to the low vacancy rate as employment opportunities generally decrease during a recession. However, as the economy improves so will alternative employment opportunities for teachers, resulting in greater increases in teacher vacancies. The projected vacancy rates for the elementary level is 5.24 percent, and the projected vacancy rate for the secondary level is 5.40 percent.

Special Area:

In addition to the elementary and secondary teacher vacancy rates, teacher vacancies by special area were identified. The actual number of new hires may be observed in Table 17 and vacancy rates may be observed in Table 18.

TABLE 17
TEACHER VACANCIES
BY SPECIAL AREA

Area	1980-81	1981-82	1982-83	1983-84	1984-85
Elem. P.E.	28	14	21	33	33
Elem. Art	10	9	9	18	20
Elem. Music	61	53	44	49	45
Special Ed.	562	416	390	384	335
Vocational Ed.	198	139	156	153	127
Total	859	631	620	637	560

TABLE 18

TEACHER VACANCY RATE
BY SPECIAL AREA

Area	1980-81	1981-82	1982-83	1983-84	1984-85	Projected Rate
Elem. P. E.	4.74	2.76	4.38	6.92	5.06	4.84
Elem. Art	7.04	5.63	5.56	10.98	5.95	6.76
Elem. Music	12.55	8.83	7.45	8.55	7.03	8.42
Special Ed.	14.99	10.20	9.52	9.27	7.92	9.77
Vocational Ed.	6.85	4.67	5.18	4.90	3.91	4.80

Generally speaking, special area vacancy rates exceed the elementary and secondary classroom teacher vacancy rates. In particular, special education has a very high vacancy rate. However this rate has declined over the last five years from 14.99 percent in 1980-81 to 7.92 percent in 1984-85. The high vacancy rates in special areas may be attributed to a variety of reasons. Among these are that many of these areas are considered to be extra curricular activities, some may be funded by federal grants which may not be renewed, or less than favorable teaching environments may have existed.

Teaching Area:

Teacher vacancies by teaching area are presented in Tables 19 and 20. Table 19 examines the actual number of teachers while Table 20 examines the vacancy rate.

TABLE 19

CURRENT TEACHER VACANCIES
BY YEAR AND TEACHING AREA

Area	1980-81	1981-82	1982-83	1983-84	1984-85
Elem. Self Cont.	658	464	501	516	707
Other Self Cont.	25	16	19	16	15
Spec. Ed.	562	416	390	384	335
Science	116	62	73	92	113
Math	120	87	94	139	167
Soc. Science	77	46	42	51	74
English	145	81	118	106	140
Foreign Lang.	16	10	23	27	36
Music	95	82	68	76	70
Art	30	24	24	37	40
Dist. Ed.	6	7	6	7	10
Business Ed.	40	19	29	27	37
Indust. Art	61	44	31	37	36
Agriculture	17	15	19	9	6
P.E./Health	74	38	57	82	81
Home Ec.	40	17	52	57	26
Other	100	75	44	38	34
Total	2,182	1,503	1,590	1.701	1,927

TABLE 20

TEACHER VACANCY RATE
BY YEAR AND TEACHING AREA

Area	1980-81	1981-82	1982-83	1983-84	1984-85	Projected
Elem. Self Cont.	5.59	3.93	4.36	4.51	6.21	5.24
Other Self Cont.	4.18	3.56	4.70	3.94	4.16	4.12
Special Ed.	14.99	10.20	9.52	9.27	7.92	9.77
Science	6.50	3.55	4.40	5.59	7.10	5.85
Math	5.28	3.88	4.40	6.54	8.34	6.35
Soc. Sci.	4.57	2.65	2.43	3.03	4.64	3.76
English	5.98	3.25	4.78	4.30	6.13	5.20
Foreign Lang.	6.63	3.51	8.55	9.82	13.38	9.48
Music	9.97	8.73	7.47	8.51	7.06	8.03
Art	6.47	5.12	5.28	8.20	5.77	6.07
Dist. Ed.	4.80	5.74	5.41	7.22	14.71	9.40
Bus. Ed.	4.83	2.32	3.62	3.30	4.20	3.79
Indust. Art	11.53	7.91	5.68	6.96	6.79	7.53
Agriculture	6.16	5.42	7.01	3.42	2.26	4.21
P.E./Health	5.36	2.82	4.41	6.40	4.99	4.84
Home Ec.	6.45	2.81	8.83	11.11	4.99	6.38
Other	5.16	4.84	2.87	2.35	2.09	3.12

When reviewing teacher vacancy by subject area, once more the special area vacancy rates are among the highest. Other areas which also appear above the general vacancy rates at the secondary level are science (5.85), mathematics (6.35), foreign languages (9.48), distributive education (9.40), industrial arts (7.53), home economics (6.38), and music (8.03). These high vacancy rates may be related to the fact that many employment opportunities outside the teaching profession exist for such areas as math, science and industrial arts. On the other hand, the vacancy rate for distributive education may be directly related to the decrease in employment training opportunities available to students. Above average vacancy rates in the math, science and industrial arts areas are problem areas which have been identified nationally. Kentucky appears to be a part of these trends. The area of special education frequently is partially funded by grant money and funding in these areas may have been reduced at the federal level.

Projected Openings:

Both vacancies and the growth factor contribute to potential teaching openings. Using both the projected vacancy rates and projected teacher demand, prospective teacher openings are estimated.

Openings due to teacher vacancies for a given year were derived by multiplying the projected vacancy rates by upper and lower limit teacher demand figures for the previous year. Openings due to growth were calculated by subtracting the projected number of teachers needed for a given year from the number of teachers needed for the following year. Total projected openings were then generated by adding a positive growth figure to or subtracting a negative growth figure from openings due to vacancies. Base figures for growth are located in Current Teacher Demand Tables (Tables 7, 9, 11 and 13) for the year 1984-85 and Projected Teacher Demand Tables (Tables 8, 10, 12 and 14) for the years 1985-86 through 1989-90. Projected vacancy rates may be found in Tables 15, 16, 18 and 20.

Elementary (Grades K-6) and Secondary (Grades 7-12) levels:

For the 1985-86 academic year, growth accounts for the 43 percent of teacher openings for the elementary level. As was previously noted, many of these openings can be attributed to the recent legislation requiring mandatory kindergarten attendance. Also an increase in enrollment has caused growth in the lower elementary grades. By the year 1988-89 the enrollments will decline and all elementary teacher openings will be attributed to vacancies. Table 21 presents these data.

TABLE 21

PROJECTED OPENINGS DUE
TO GROWTH AND VACANCIES
ELEMENTARY LEVEL (K-6)

	Projected Openings		Growth		Vacancies	
Year	Upper Limits	Lower Limits	Upper Limits	Lower Limits	Upper Limits	Lower Limits
1985-86	1029	1189	440	508	589	681
1986-87	739	853	127	146	612	707
1987-88	649	750	30	35	619	715
1988-89	591	683	- 30	- 34	621	717
1989-90	520	600	- 99	- 115	619	715

No growth is projected for the secondary level (grades 6-12) for the rest of the decade. Therefore, all teacher openings are attributed to vacancies. Projected secondary openings may be observed in Table 22.

TABLE 22

PROJECTED OPENINGS DUE
TO GROWTH AND VACANCIES
SECONDARY LEVEL (7-12)

	Projected Openings		Growth		Vacancies	
Year	Upper Limits	Lower Limits	Upper Limits	Lower Limits	Upper Limits	Lower Limits
1985-86	359	417	-151	-181	516	592
1986-87	250	288	-257	-295	507	583
1987-88	322	370	-172	-197	494	567
1988-89	262	301	-222	-255	484	556
1989-90	348	403	-124	-143	472	542

Special Areas:

Special area teacher openings are shown in three tables: Table 23 presents openings due to growth, Table 24 presents openings due to vacancies and Table 25 displays total openings. Again, for these areas, no upper or lower limits were calculated.

TABLE 23

PROJECTED OPENINGS DUE TO GROWTH
SPECIAL AREA

Year	Elem. P.E.	Elem. Art	Elem. Music	Special Education	Vocational Education
1985-86	20	-10	5	-14	- 47
1986-87	7	4	8	0	- 82
1987-88	2	1	2	0	- 55
1988-89	- 2	-1	- 2	0	- 70
1989-90	- 5	- 3	- 6	0	- 40

TABLE 24

PROJECTED OPENINGS DUE TO VACANCIES
SPECIAL AREA

Year	Elem. P.E.	Elem. Art	Elem. Music	Special Education	Vocational Education
1985-86	32	27	58	409	146
1986-87	33	26	59	407	144
1987-88	33	26	59	407	140
1988-89	34	26	59	407	138
1989-90	33	26	59	407	134

TABLE 25

TOTAL PROJECTED OPENINGS
SPECIAL AREA

Year	Elem. P.E.	Elem. Art	Elem. Music	Special Education	Vocational Education
1985-86	52	17	63	395	99
1986-87	40	30	67	407	62
1987-88	35	27	61	407	85
1988-89	32	25	57	407	68
1989-90	28	23	53	407	94

Subject area teacher openings are displayed in Tables 26, 27 and 28. Generally, the only areas where openings may be attributed to both growth and vacancies are in the self-contained classroom at the elementary level, and elementary special areas. As mentioned previously, growth is due to the increase in enrollment at the early elementary grades. All other openings may be attributed to vacancies as no growth is projected for the secondary level.

TABLE 26

TOTAL OPENINGS DUE TO GROWTH BY TEACHING AREA

Year	1985-86		1986-87		1987-88		1988-89		1989-90	
Area	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
El. Self Cont.	440	508	127	146	30	35	- 30	- 34	- 99	- 115
Other Self Cont.	51	84	- 7	- 9	- 6	- 6	- 7	- 7	- 4	- 5
Spec. Ed.	- 14	- 14	0	0	0	0	0	0	0	0
Science	- 238	- 76	- 39	- 44	- 26	- 29	- 34	- 38	- 19	- 21
Math	- 263	- 59	- 50	- 55	- 33	- 37	- 43	- 48	- 24	- 26
Soc. Sci.	- 194	- 33	- 39	- 43	- 26	- 30	- 34	- 37	- 19	- 21
English	- 328	- 94	- 58	- 63	- 38	- 43	- 49	- 55	- 28	- 30
Foreign Lang.	- 95	- 65	- 8	- 9	- 4	- 5	- 7	- 7	- 3	- 4
Music	- 73	- 39	0	- 1	- 4	- 4	- 9	- 10	- 10	- 11
Art	- 107	- 74	- 5	- 5	- 4	- 5	- 8	- 9	- 7	- 7
Dist. Ed.	7	16	- 2	- 2	- 1	- 2	- 2	- 2	- 1	- 1
Business	- 142	- 60	- 20	- 22	- 14	- 15	- 17	- 19	- 9	- 11
Indust. Arts	- 66	- 14	- 12	- 14	- 9	- 9	- 11	- 12	- 6	- 7
Agriculture	- 28	- 2	- 6	- 7	- 4	- 5	- 6	- 6	- 3	- 3
Health/P.E.	- 164	- 77	- 14	- 16	- 12	- 14	- 20	- 22	- 16	- 17
Home Ec.	- 42	10	- 13	- 15	- 9	- 9	- 10	- 12	- 7	- 7
Other	- 124	23	- 36	- 40	- 23	- 27	- 33	- 34	- 17	- 19

TABLE 27

PROJECTED OPENINGS DUE TO VACANCIES BY TEACHING AREA

Year	1985-86		1986-87		1987-88		1988-89		1989-90	
Area	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
El. Self Cont.	589	681	612	707	619	715	621	717	619	715
Other Self Cont.	10	10	12	13	12	13	11	13	11	12
Spec. Ed.	409		407		407		407		407	
Science	98	98	84	94	82	91	80	89	78	87
Math	132	132	116	129	112	125	110	123	108	120
Soc. Sci.	61	61	54	60	52	58	51	57	50	56
English	126	126	109	121	106	118	104	115	101	113
Foreign Lang.	34	34	25	28	24	27	24	27	24	26
Music	86	86	80	83	80	83	80	83	79	82
Art	48	48	41	43	41	43	41	43	40	42
Dist. Ed.	6	6	7	8	7	8	7	7	6	7
Business	33	33	28	31	27	30	26	29	26	29
Indust. Arts	40	40	35	39	34	38	33	37	32	36
Agriculture	11	11	10	11	9	10	9	10	9	10
Health/PE	79	79	71	75	70	74	69	73	68	72
Home Ec.	32	32	30	33	29	32	28	31	28	31
Other	45	45	41	46	40	44	39	44	38	43

TABLE 28

PROJECTED OPENINGS
BY TEACHING AREA

Year	1985-86		1986-87		1987-88		1988-89		1989-90	
Area	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
El. Self Cont.	1027	1189	739	853	649	750	591	685	520	600
Other Self Cont.	61	94	5	4	6	7	4	6	7	7
Special Ed.	395		407		407		407		407	
Science	- 140	22	45	50	56	62	46	51	59	60
Math	- 131	73	66	74	79	88	67	75	84	94
Soc. Sci.	- 133	28	15	23	26	28	17	20	31	35
English	- 202	32	51	58	68	75	55	60	73	83
Foreign Lang.	- 61	- 31	17	19	20	22	17	20	21	20
Music	13	47	80	82	76	79	71	73	69	71
Art	- 59	- 26	36	38	37	38	33	34	33	35
Dist. Ed.	13	22	5	6	6	6	5	5	5	6
Business	- 109	- 27	8	9	13	15	9	10	17	18
Indust. Arts	- 26	26	23	25	25	29	22	25	26	29
Agriculture	- 17	9	4	4	5	5	3	4	6	7
Health/PE	- 85	2	57	59	58	60	49	51	52	55
Home Ec.	- 10	42	17	18	20	23	18	19	21	24
Other	- 79	68	5	6	17	17	6	10	21	24

A large percentage of the secondary area reflects decline rather than growth. This decline can be accounted for by decreasing enrollments experienced at the secondary level. The academic year 1985-86 in particular, shows a significant decrease in teacher demand. This is due to both declining enrollments and adjustments for overemployment of teachers in previous years.

TEACHER SUPPLY

Teacher Supply:

Teacher supply is defined as the total number of qualified teachers in the state which includes teachers presently teaching, newly certified teachers, and teachers in the reserve pool. However, as a major portion of teaching vacancies are filled by teachers without previous experience, only the actual and projected supply of teacher candidates will be examined. (Refer to Appendix V.) Accurate data were not available to determine the current reserve pool of certified teachers not teaching at the present time. Also, it cannot be determined whether these individuals would consider assuming teaching positions. Therefore, this population will not be addressed.

Overview of the Methodology:

Information pertaining to teacher supply was obtained from the Kentucky Department of Education, Division of Teacher Education and Certification, and the Council on Higher Education. The certification data were an accounting of provisional certificates issued each year for the last two years (1983 and 1984). Certification prior to 1982 was reported in a different fashion and therefore was determined to be unusable for the purpose of this study. Since only two years of data may not always provide an ample base for estimating future projections, bachelor's degrees conferred from teacher education programs were examined to assist in determining the trend in future teacher supply. These data were extracted by state supported and independent colleges from

Degrees and Other Formal Awards Conferred by Kentucky Colleges and Universities for the years 1980 through 1984 as published by the Kentucky Council on Higher Education.

Linear regression lines were calculated on the number of degrees conferred for elementary education majors, special education majors and those students reported in secondary education. The regression line represented the mean of the degrees conferred for the five year review period (1980-1984). The average change of variance between the years determines the slope. The slope is then used to estimate the number of degrees to be conferred for each of the next five years. (Refer to Appendix VII.) It should be noted that the use of a linear regression analysis assumes that the trend set by previous years will continue. Should conditions be modified, these projected trends may change.

Certification data were compared with the actual number of degrees conferred to determine differences between the data. A percentage of difference was then calculated and used to make adjustments to the data for in-state prepared teacher candidates who could not be accounted for in the degrees conferred data. An adjustment for out-of-state trained teacher candidates was also made. A constant was determined by use of the exponential smoothing technique to represent the projected value of the out-of-state prepared candidates.

Finally, data were analyzed by subject area. This analysis consisted of determining a percentage of teacher candidates certified for each subject area from the teaching certification data. These projected percentages were then applied to the total secondary figures to estimate the supply of teacher candidates for each teaching area.

Table 36 presents data on new teacher candidates at the elementary level; Table 37 presents data on new teacher candidates at the secondary level; and Table 38 presents data on special education. Table 39 and 40 represent data on new teacher candidates in special areas and teaching areas respectively.

Elementary Education:

The general supply of new teacher candidates at the elementary level has declined over the last two years. Should elementary supply continue to decline at the same rate, an 18 percent decrease will be experienced over the next five years. It should be noted that more degrees were conferred than certificates were issued. This would suggest that an average of 6 percent of the elementary education majors graduating from Kentucky teacher education programs do not seek certification in the Commonwealth.

TABLE 29

LINEAR REGRESSION ANALYSIS
ACTUAL AND PROJECTED SUPPLY OF
NEW TEACHER CANDIDATES
ELEMENTARY EDUCATION

Year	In-State Degrees Conferred	Other In-State Certificates	Out-of-State Prepared	Total Supply
1983	846	-11	338	1,173
1984	858	-76	286	1,068
1985	698	-42	306	962
1986	653	-39	306	919
1987	608	-37	306	877
1988	563	-34	306	835
1989	518	-31	306	792

Secondary Education:

The supply of new teacher candidates at the secondary level also reflects a decrease. The projected decrease is fairly large representing approximately a 31 percent decline over the next 5 years. Refer to Table 30.

TABLE 30

LINEAR REGRESSION ANALYSIS
ACTUAL AND PROJECTED SUPPLY OF
NEW TEACHER CANDIDATES
SECONDARY EDUCATION

Year	In-State Degrees Conferred	Other In-State Certificates	Out-of-State Prepared	Total Supply
1983	266	304	207	777
1984	247	294	161	702
1985	253	118	183	554
1986	224	104	183	511
1987	195	91	183	469
1988	166	77	183	426
1989	136	64	183	383

Special Education:

As the special area of special education has been a major concern of the Kentucky Department of Education, Division of Teacher Education and Certification, primarily because of the large increase in requests for emergency certificates in this field, it was examined in more detail. The actual and projected supply range from 413 in 1983 to 170 in 1989. As can be observed, a 43 percent decrease is projected for the area of special education. This represents a fairly large decline. Refer to Table 31.

TABLE 31

LINEAR REGRESSION ANALYSIS
ACTUAL AND PROJECTED SUPPLY OF NEW TEACHER CANDIDATES
SPECIAL EDUCATION

Year	In-State Degrees Conferred	Other In-State Certificates	Out-of-State Prepared	Total Supply
1983	251	36	126	413
1984	199	79	103	381
1985	151	34	112	297
1986	125	28	112	265
1987	99	22	112	233
1988	73	16	112	201
1989	47	11	112	170

Special Areas:

The supply of new teacher candidates for the special areas of elementary art, elementary music, elementary physical education, special education and vocational education have all declined and will continue to decline for the next 5 years. Refer to Table 32.

TABLE 32

LINEAR REGRESSION ANALYSIS
ACTUAL AND PROJECTED SUPPLY OF NEW TEACHER CANDIDATES
SPECIAL AREAS

	1983	1984	1985	1986	1987	1988	1987
Elem. Art	35	26	21	19	17	15	13
Elem. Music	117	88	70	64	57	50	43
Elem. P.E.	112	96	73	66	59	52	45
Special Ed.	413	381	297	265	233	201	170
Voc. Ed.	283	233	190	176	161	146	132
Totals	960	824	651	590	527	464	403

Teaching Areas:

The projected supply of new teacher candidates was determined by teaching area. As in previous groups, the trend reflects a continual decline in supply. Refer to Table 33 which presents the supply and projected supply by teaching area and by year.

TABLE 33

LINEAR REGRESSION ANALYSIS
ACTUAL AND PROJECTED SUPPLY OF
NEW TEACHER CANDIDATES
BY TEACHING AREA

Year Area	1983	1984	1985	1986	1987	1988	1989
El. Educ.	1,173	1,068	962	919	877	835	792
Spec. Ed.	413	381	297	265	233	201	170
Agric.	63	64	46	41	37	32	28
Art	71	53	43	38	34	30	26
Bus.	111	89	70	63	56	49	42
Dist. Ed.	7	4	4	3	3	3	2
English	119	136	94	85	75	66	57
Foreign Lang.	17	22	15	13	12	10	9
Phy. Ed.	275	236	180	162	145	127	110
Home Ec.	35	39	27	25	22	19	17
Indust. Arts	81	61	49	44	39	35	30
Math	81	91	63	57	51	45	39
Music	181	136	107	99	88	77	67
Not Report.	37	35	26	23	21	18	16
Other	38	12	15	14	12	11	9
Science	84	81	59	53	48	42	36
Soc. Sci.	161	119	96	87	77	68	60
Total	2,947	2,627	2,153	1,991	1,830	1,668	1,510

Origin of Preparation:

To determine the actual productivity of Kentucky institutions of higher education, an analysis of the supply of newly certified teachers was undertaken. This analysis identified newly certified teachers by their origin of preparation. The supply was examined by out-of-state preparation and in-state preparation. In-state preparation was further examined by teachers from the private sector and those trained in Kentucky state-supported teacher education programs.

Over the last two years, the new certificate holders prepared by state-supported institutions at the elementary level have fallen to just under fifty percent. The number of teacher candidates in private institutions has slightly increased over the same time period and represents just under twenty-five percent. The number of out-of-state prepared teachers has declined from 1983 to 1984. However, this group does represent a little more than a quarter of the population under review. (Refer to Table 34.) Generally, a stable balance is observed between those certified teachers prepared in Kentucky public and private institutions and those prepared at out-of-state institutions.

TABLE 34

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(ELEMENTARY LEVEL)

Year	Public	%	Private	%	Out-of-State	%	Total
1983	582	49.62	253	21.57	338	28.82	1173
1984	516	48.31	266	24.91	286	26.78	1068

In a similar fashion, the number of certified teachers at the secondary level prepared at state-supported institutions was just over half the total population of that group in 1984. Approximately 22 percent are prepared at Kentucky private institutions and the remainder are produced from institutions outside of the Commonwealth of Kentucky. Table 35 presents these data.

TABLE 35

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(SECONDARY LEVEL)

Year	Public	%	Private	%	Out-of-State	%	Total
1983	383	49.29	187	24.07	207	26.64	777
1984	389	55.41	152	21.65	161	22.94	702

Clearly, the majority of newly certified teachers in the special education area come from Kentucky state-supported institutions, and this has been the trend for the last two years. Approximately 27 percent of the special education professionals come from out-of-state institutions and the remainder are prepared in the private sector (refer to Table 36).

TABLE 36

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(SPECIAL EDUCATION)

Year	Public	%	Private	%	Out of State	%	Total
1983	254	61.5	33	7.99	126	30.51	413
1984	241	63.25	37	9.71	103	27.03	381

For a more in-depth analysis, special subject areas were examined at both the elementary and secondary level. Generally speaking, the major proportion of teachers in the area of agriculture and industrial arts are educated within the Kentucky state-supported institutions. Refer to Table 37 and Table 38 respectively.

TABLE 37

SUPPLY OF NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(AGRICULTURE)

Year	Public	%	Private	%	Out of State	%	Total
1983	57	90.48	4	6.35	2	3.18	63
1984	63	98.44	1	1.56	0	0	64

TABLE 38

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(INDUSTRIAL ARTS)

Year	Public	%	Private	%	Out of State	%	Total
1983	72	88.89	4	4.94	5	6.17	81
1984	53	86.88	5	8.20	3	4.92	61

The only subject area that draws heavily in out-of-state trained teachers is that of foreign languages. Foreign languages certificate holders from out-of state institutions averaged approximately 33 percent over the last two years. (Refer to Table 46.) The majority of remaining teaching areas draw approximately one quarter of their newly certified teachers from out of state. These teacher areas can be observed in the following tables.

TABLE 39

SUPPLY OF

NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(ART)

Year	Public	%	Private	%	Out of State	%	Total
1983	32	45.07	21	29.58	18	25.35	71
1984	31	58.49	10	18.87	12	22.64	53

TABLE 40

SUPPLY OF NEWLY CERTIFIED TEACHERS BY ORIGIN OF PREPARATION (BUSINESS)

Year	Public	%	Private	%	Out of State	%	Total
1983	65	58.56	20	18.02	26	23.42	111
1984	53	59.55	23	25.84	13	14.61	89

TABLE 41

SUPPLY OF NEWLY CERTIFIED TEACHERS BY ORIGIN OF PREPARATION (HEALTH AND PHY. ED.)

Year	Public	%	Private	%	Out of State	%	Total
1983	149	54.18	70	25.45	56	20.36	275
1984	130	55.08	64	27.12	42	17.80	236

TABLE 42

SUPPLY OF NEWLY CERTIFIED TEACHERS BY ORIGIN OF PREPARATION (HOME ECONOMICS)

Year	Public	%	Private	%	Out of State	%	Total
1983	27	77.14	2	5.71	6	17.14	35
1984	25	64.1	6	15.39	8	20.51	39

TABLE 43

SUPPLY OF NEWLY CERTIFIED TEACHERS BY ORIGIN OF PREPARATION (MATHEMATICS + MATH-PHY. SCIENCE)

Year	Public	%	Private	%	Out of State	%	Total
1983	34	41.98	20	24.69	27	33.33	81
1984	44	48.35	26	28.57	21	23.08	91

TABLE 44

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(MUSIC)

Year	Public	%	Private	%	Out of State	%	Total
1983	87	48.07	36	19.89	58	32.04	181
1984	66	48.53	39	28.68	31	22.79	136

TABLE 45

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(DISTRIBUTIVE EDUCATION)

Year	Public	%	Private	%	Out of State	%	Total
1983	7	100	0	-	0	-	7
1984	2	50	0	-	2	50	4

TABLE 46

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(FOREIGN LANGUAGE)

Year	Public	%	Private	%	Out of State	%	Total
1983	7	41.18	4	23.53	6	35.29	17
1984	10	45.46	5	22.73	7	31.81	22

TABLE 47

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(SCIENCE)

Year	Public	%	Private	%	Out of State	%	Total
1983	34	40.48	21	25.0	29	34.52	84
1984	38	46.91	24	29.63	19	23.46	81

TABLE 48

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(SOCIAL SCIENCE)

Year	Public	%	Private	%	Out of State	%	Total
1983	77	47.83	43	26.71	41	25.47	161
1984	84	70.59	23	19.33	12	10.08	119

TABLE 49

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(NOT REPORTED)

Year	Public	%	Private	%	Out of State	%	Total
1983	11	29.73	5	13.51	21	56.76	37
1984	14	40.0	4	11.43	17	48.57	35

TABLE 50

SPECIAL AREAS

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(ELEMENTARY PHY. ED.)

Year	Public	%	Private	%	Out of State	%	Total
1983	61	54.46	28	25.00	23	20.54	112
1984	53	55.21	26	27.08	17	17.71	96

TABLE 51

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(ELEMENTARY MUSIC)

Year	Public	%	Private	%	Out of State	%	Total
1983	56	47.86	23	19.66	38	32.48	117
1984	43	48.86	25	28.41	20	22.73	88

TABLE 52

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(ELEMENTARY ART)

Year	Public	%	Private	%	Out of State	%	Total
1983	16	45.71	10	28.57	9	25.71	35
1984	15	57.69	5	19.23	6	23.08	26

TABLE 53

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(OTHER)

Year	Public	%	Private	%	Out of State	%	Total
1983	23	60.53	12	31.58	3	7.89	38
1984	6	50.0	5	41.67	1	8.33	12

TABLE 54

SUPPLY OF
NEWLY CERTIFIED TEACHERS
BY ORIGIN OF PREPARATION
(VOCATIONAL)

Year	Public	%	Private	%	Out of State	%	Total
1983	214	75.62	34	12.01	35	12.37	283
1984	175	74.89	35	14.89	23	10.21	233

Summary:

Recent changes in teacher certification regulations may have some impact on the future of teacher supply. However, this impact is yet to be determined. Senate Bill 19 passed by the Kentucky legislature introduced both a testing requirement and an internship which became effective January 1, 1985. The National Teachers Examination (NTE) program will also be required. Certification candidates will be required to show evidence of satisfactory completion of the NTE program. Once eligibility is established, a candidate will receive a statement of entitlement to teacher certification. The entitlement will be issued for a four-year period. Once employment is secured, a one year certificate will be issued. This certificate classifies the teacher candidate as an intern teacher.

After the teacher successfully completes the one year internship, the certificate will be extended for the usual duration of ten years. Should teacher candidates not participate in an internship during the four year entitlement period, they will be required to re-take the testing program to re-establish entitlement.

The Kentucky Department of Education has also introduced a new three-level certification structure. This new structure includes elementary, middle school, and high school. Under KRS 161.030 and 704 KRS 20:045, a provisional certificate for teaching in the middle grades can be issued and renewed. These provisions became effective January 1, 1985. Provisions are also cited for elementary teachers and high school teachers who wish to obtain middle grade endorsements. (Refer to Appendix VIII, Teacher Education Circular No. 367, Published on October 24, 1984.)

As enrollments at the high school level continue to decline, and enrollments at the middle school grade level increase, it would be expected that some secondary teachers would seek endorsement for service in the middle grades.

A special summer session of the Kentucky Legislature passed legislation in July of 1985 which will gradually reduce the student/teacher ratios. This gradual reduction will be different at each grade level (K-12) each year. Senate Bill 169, 1984 concerning mastery of essential skills also has provisions to establish supplemental classroom units for remedial instruction. The number of units will be based on student needs as identified through testing. Depending on the need, this legislation may have an influence on estimates.

Should teacher shortages increase, contingency plans developed by the Kentucky Department of Education recommend increasing the student/teacher ratio.

With these changes, future reporting procedures will need to be adapted. The new middle school certification may also have an effect on teacher supply. However, as endorsements for the middle level can be obtained by currently certified teachers, the effect on supply may be minimal.

TEACHER SUPPLY VS DEMAND

To identify patterns or trends in teacher supply and demand, projected teacher shortages or surpluses were examined. A shortage or surplus was calculated by comparing projected teacher openings to estimated supply of new certificate holders. An analysis of these data should establish the future relationship between supply and demand.

Overview of the Methodology:

An average annual surplus or shortage of teachers at the elementary level, secondary level and for special areas was calculated for the academic years 1983-84 through 1984-85 and projected for the years 1985-86 through 1989-90. A surplus or shortage was determined by subtracting the supply of new teacher candidates from projected teacher openings. The same method was also used for various teaching areas to provide a more complete overview of the supply vs demand issue.

Actual counts were compared for the years of 1983 through 1985. Upper and lower limits were projected for years 1985 through 1990. The lower limit reflects the student-teacher ratio of 25.86 for the elementary grades and 27 for the secondary level. When identifying surpluses and shortages, major attention should be given to the lower limits as they reflect the most desirable student-teacher ratios.

Elementary Level:

With exception of the 1985-86 academic year, supply and demand data have suggested that the Commonwealth of Kentucky will be meeting its manpower needs for public school teachers at the elementary level for the next five years (1985-1990). Recent data also reflected a surplus in the supply of new teacher candidates at the elementary level. (Refer to Table 55.)

TABLE 55

SUPPLY VS. DEMAND
ACTUAL AND PROJECTED
ELEMENTARY LEVEL

Year	Openings	Supply	Shortage	Surplus
1983-84	516	1173	-	657
1984-85	707	1068	-	361

Year	Openings		Supply	Shortage		Surplus	
	Upper	Lower		Upper	Lower	Upper	Lower
1985-86	1029	1189	962	67	227	-	-
1986-87	739	853	919	-	-	180	66
1987-88	649	750	877	-	-	228	127
1988-89	591	683	835	-	-	244	152
1989-90	520	600	792	-	-	272	192

The general surplus of new elementary teacher candidates is expected to continue throughout the decade. However for the 1985-86 academic year, the number of new teacher candidates is not projected to meet the demand. This may be attributed to the recent legislation requiring kindergarten as a prerequisite to entering the first grade. This increased demand for elementary teachers should be a one time occurrence. However, with the exception of the normal effects of teacher vacancies, shortages are not anticipated for the next five years.

Secondary Education:

When comparing the projected supply of new teacher candidates to projected openings at the secondary level, a teacher surplus may be observed until the end of the decade. An increase in the projected oversupply of secondary level teachers during the next two school years may be attributed to a decrease in overall teacher demand. This in turn, is due to a general decline in student enrollment in the secondary schools. However, enrollments will begin to increase in 1989-90. This increase and projected decline in new teacher candidates may create a shortage. This shortage may occur in the form of spot shortages in various geographical areas of the state and in several subject areas. This trend would depend on many variables including the level of decrease in students graduating from teacher education programs in the secondary areas throughout Kentucky's educational institutions and the level of in-migrating teachers from out-of-state institutions.

TABLE 56

SUPPLY VS. DEMAND
ACTUAL AND PROJECTED
SECONDARY LEVEL 7-12

Year	Openings	Supply	Shortage	Surplus
1983-84	575	777	-	202
1984-85	701	702	-	1

Year	Openings		Supply	Shortage		Surplus	
	Upper	Lower		Upper	Lower	Upper	Lower
1985-86	359	417	554	-	-	195	137
1986-87	250	288	511	-	-	261	223
1987-88	322	370	469	-	-	147	99
1988-89	262	301	426	-	-	164	125
1989-90	348	403	383	-	20	35	-

Special Areas:

Special areas are those areas where no student-teacher ratios were defined by law. Basically, these areas fall into three categories: (1) elementary art, physical education, and music; (2) special education; and (3) vocational education.

The elementary areas of art and music will experience shortages of new teacher candidates. However, as secondary enrollments continue to decline, secondary art and music teachers may be available to teach at the elementary level as they may readily obtain elementary endorsement. The area of physical education presents no foreseeable problems in supply. Current and projected data in elementary special areas can be observed in Table 57: physical education; Table 58: elementary art; Table 59: elementary music.

TABLE 57

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
SPECIAL AREA (EL. P.E.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	El. P.E.	33	112	-	79
1984-85		33	96	-	63
1985-86		52	73	-	21
1986-87		40	66	-	26
1987-88		35	59	-	24
1988-89		32	52	-	20
1989-90		28	45	-	17

TABLE 58

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
SPECIAL AREA (EL. ART)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	El. Art	18	35	-	17
1984-85		20	26	-	6
1985-86		17	21	-	4
1986-87		30	19	11	-
1987-88		27	17	10	-
1988-89		25	15	10	-
1989-90		23	13	10	-

TABLE 59

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
SPECIAL AREA (EL. MUSIC)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	El. Music	49	117	-	68
1984-85		45	88	-	43
1985-86		63	70	-	7
1986-87		67	64	3	-
1987-88		61	57	4	-
1988-89		57	50	7	-
1989-90		53	43	10	-

Public Law 94-142 (The Education for All Handicapped Students Act) required mandatory education for the handicapped in public education. This law has had an influence in the demand for teachers trained in special education. Kentucky is projected to experience shortages in the supply of teachers in this teaching field. With emergency certificates presently being issued in special education, and the shortages projected in this teaching area, special concern should be directed towards addressing this need.

TABLE 60

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
SPECIAL AREA (SPEC. ED.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Spec. Ed.	384	413	-	29
1984-85		335	381	-	46
1985-86		395	297	98	-
1986-87		407	265	142	-
1987-88		407	233	174	-
1988-89		407	201	206	-
1989-90		407	169	238	-

Vocational education has experienced an oversupply in 1983 through 1985. It has been projected that this surplus will continue to be observed for the next five years. Table 61 indicates current and projected supply and demand in this area.

TABLE 61

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
SPECIAL AREA (VOCATIONAL ED.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Voc. Ed.	153	283	-	130
1984-85		127	233	-	106
1985-86		99	190	-	91
1986-87		62	176	-	114
1987-88		85	161	-	76
1988-89		68	146	-	78
1989-90		94	132	-	38

Teaching Area:

An analysis of all teaching areas was examined to identify areas of need for specific subject area specialists. Fourteen specific areas were identified and surpluses and shortages were determined for these areas. Oversupply and undersupply were then classified into upper and lower limits. When reviewing the data in these teaching areas, the upper limit during the projected year of 1985-86 reflects a large surplus of new teacher candidates. These data may represent an inflated figure, as base calculations were determined by actual teachers employed rather than estimated upper and lower teacher demand. Therefore, upper limit calculations for 1985-86 may have overcompensated for increased class sizes. It should be noted that under ideal circumstances and in keeping with Kentucky Statute 157.360, an increased class size is not the most desirable condition. Therefore, the focus should be placed on maintaining the lower student-teacher ratio.

When examining the overall profile of individual teaching areas, surpluses may be observed in the areas of industrial arts, physical education, business, social science, and agriculture. Shortages are observed in distributive education, mathematics, foreign language, science, home economics, art, music and English.

TABLE 62

SUPPLY VS DEMAND
CURRENT AND PROJECTED
TEACHING AREA (DISTRIBUTIVE EDUCATION)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Dist. Ed.	7	7	-	-
1984-85		10	4	6	-

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	13	22	4	9	18	-	-
1986-87	5	6	3	2	3	-	-
1987-88	6	6	3	3	3	-	-
1988-89	5	5	3	2	2	-	-
1989-90	6	6	2	4	4	-	-

TABLE 63

SUPPLY VS DEMAND
CURRENT AND PROJECTED
TEACHING AREA (OTHER)

Year	Area	Opening	Supply	Shortage	Surplus
1983-84	Other	38	38	-	-
1984-85		12	12	-	22

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-79	68	15	-	53	94	-
1986-87	5	6	14	-	-	9	8
1987-88	17	17	12	5	5	-	-
1988-89	6	10	11	-	-	5	1
1989-90	21	24	9	12	15	-	-

TABLE 64

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
TEACHING AREA: (MATH)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Math	139	81	58	-
1984-85		167	91	76	-

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-131	73	63	-	10	194	-
1986-87	66	74	57	9	17	-	-
1987-88	79	88	51	28	37	-	-
1988-89	67	75	45	22	30	-	-
1989-90	84	94	39	45	55	-	-

TABLE 65

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
TEACHING AREA: (FOREIGN LANG.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Foreign Lang.	27	17	10	-
1984-85		36	22	16	-

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-61	-31	15	-	-	76	46
1986-87	17	19	13	4	6	-	-
1987-88	20	22	12	8	10	-	-
1988-89	17	20	10	7	10	-	-
1989-90	21	20	9	12	11	-	-

TABLE 66

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
TEACHING AREA: (SCIENCE)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Science	92	84	-8	-
1984-85		113	81	-32	-

	Openings			Shortages		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-140	22	59	-	-	199	37
1986-87	45	50	53	-	-	8	3
1987-88	56	62	48	8	14	-	-
1988-89	46	51	42	4	9	1	-
1989-90	59	60	36	23	24	-	-

TABLE 67

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
TEACHING AREA: (HOME ECONOMICS)

Year	Area	Opening	Supply	Shortage	Surplus
1983-84	Home Ec.	57	35	22	-
1984-85		26	39	-	13

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-10	42	27	-	15	37	-
1986-87	17	18	25	-	-	8	7
1987-88	20	23	22	-	1	2	-
1988-89	18	19	19	-	-	1	-
1989-90	21	24	17	4	7	-	-

TABLE 68

SUPPLY VS DEMAND
CURRENT AND PROJECTED
TEACHING AREA (ART)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Art	37	71	-	34
1984-85		40	53	-	13

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-59	-26	43	-	-	102	69
1986-87	36	38	38	-	-	2	-
1987-88	37	38	34	3	4	-	-
1988-89	33	34	30	3	4	-	-
1989-90	33	35	26	7	9	-	-

TABLE 69

SUPPLY VS DEMAND
CURRENT AND PROJECTED
TEACHING AREA (MUSIC)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Music	76	181	-	105
1984-85		70	136	-	66

	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	13	47	107	-	-	94	60
1986-87	80	82	99	-	-	19	17
1987-88	76	79	88	-	-	12	9
1988-89	71	73	77	-	-	6	4
1989-90	69	71	67	2	4	-	-

TABLE 70

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
TEACHING AREA: (ENGLISH)

Year	Area	Opening	Supply	Shortage	Surplus
1983-84	Eng.	106	119	-	13
1984-85		140	136	4	-

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-202	32	94	-	-	296	62
1986-87	51	58	85	-	-	34	27
1987-88	68	75	75	-	-	7	-
1988-89	55	60	66	-	-	11	6
1989-90	73	83	57	16	26	-	-

TABLE 71

SUPPLY VS DEMAND
CURRENT AND PROJECTED
TEACHING AREA: (INDUST. ARTS)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Ind. Arts	37	81	-	44
1984-85		36	61	-	25

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-26	26	49	-	-	75	23
1986-87	23	25	44	-	-	21	19
1987-88	25	29	39	-	-	14	10
1988-89	22	25	35	-	-	13	10
1989-90	26	29	30	-	-	4	1

TABLE 72

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
TEACHING AREA (HEALTH-PHY. ED.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Health/PE	82	275	-	193
1984-85		81	236	-	155

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-85	2	180	-	-	265	178
1986-87	57	59	162	-	-	105	103
1987-88	58	60	145	-	-	87	85
1988-89	49	51	127	-	-	78	76
1989-90	52	55	110	-	-	58	55

TABLE 73

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
TEACHING AREA: (SOC. SCI.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Soc. Sci.	51	161	-	110
1984-85		74	119	-	45

	Openings		Supply	Shortage		Surplus	
	Upper	Lower		Upper	Lower	Upper	Lower
1985-86	-133	28	96	-	-	229	68
1986-87	15	23	87	-	-	72	64
1987-88	26	28	77	-	-	51	49
1988-89	17	20	68	-	-	51	48
1989-90	31	35	60	-	-	29	25

TABLE 74

SUPPLY VS. DEMAND
CURRENT AND PROJECTED
TEACHING AREA: (BUSINESS)

Year	Area	Opening	Supply	Shortage	Surplus
1983-84	Bus.	27	111	-	84
1984-85		37	89	-	52

	Openings		Supply	Shortage		Surplus	
	Upper	Lower		Upper	Lower	Upper	Lower
1985-86	-109	-27	70	-	-	179	97
1986-87	8	9	63	-	-	55	54
1987-88	13	15	56	-	-	43	41
1988-89	9	10	49	-	-	40	39
1989-90	17	18	42	-	-	25	24

TABLE 75

SUPPLY VS DEMAND
CURRENT AND PROJECTED
TEACHING AREA (AGRICULTURE)

Year	Area	Opening	Supply	Shortage	Surplus
1983-84	Agriculture	9	63	-	52
1984-85		6	64	-	58

	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-17	9	46	-	-	63	37
1986-87	4	4	41	-	-	37	37
1987-88	5	5	37	-	-	32	32
1988-89	3	4	32	-	-	29	28
1989-90	6	7	28	-	-	22	21

Summary:

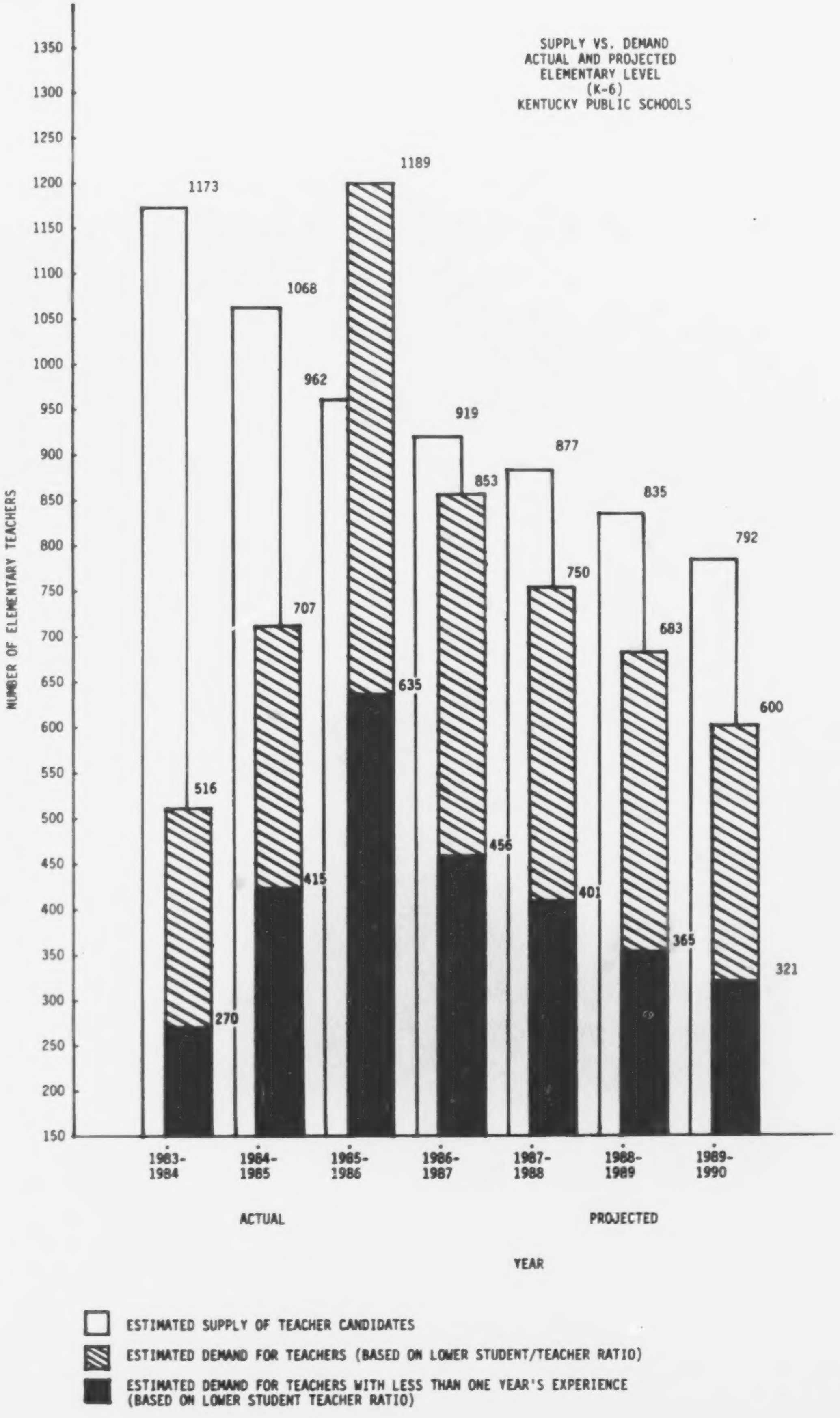
Although a large portion of newly certified teachers, when compared with openings, reflect, an oversupply, many factors need to be considered when determining whether this oversupply actually creates a surplus. For example, the fact that a graduate who is eligible and applies for teacher certification does not necessarily ensure that this individual will actually choose to teach. Many newly certified teachers may find employment opportunities in other occupations within the state. They may also elect to leave Kentucky for higher salaried teaching positions. This may be especially true in the areas of mathematics, science, and industrial arts where high-demand transferrable skills exist.

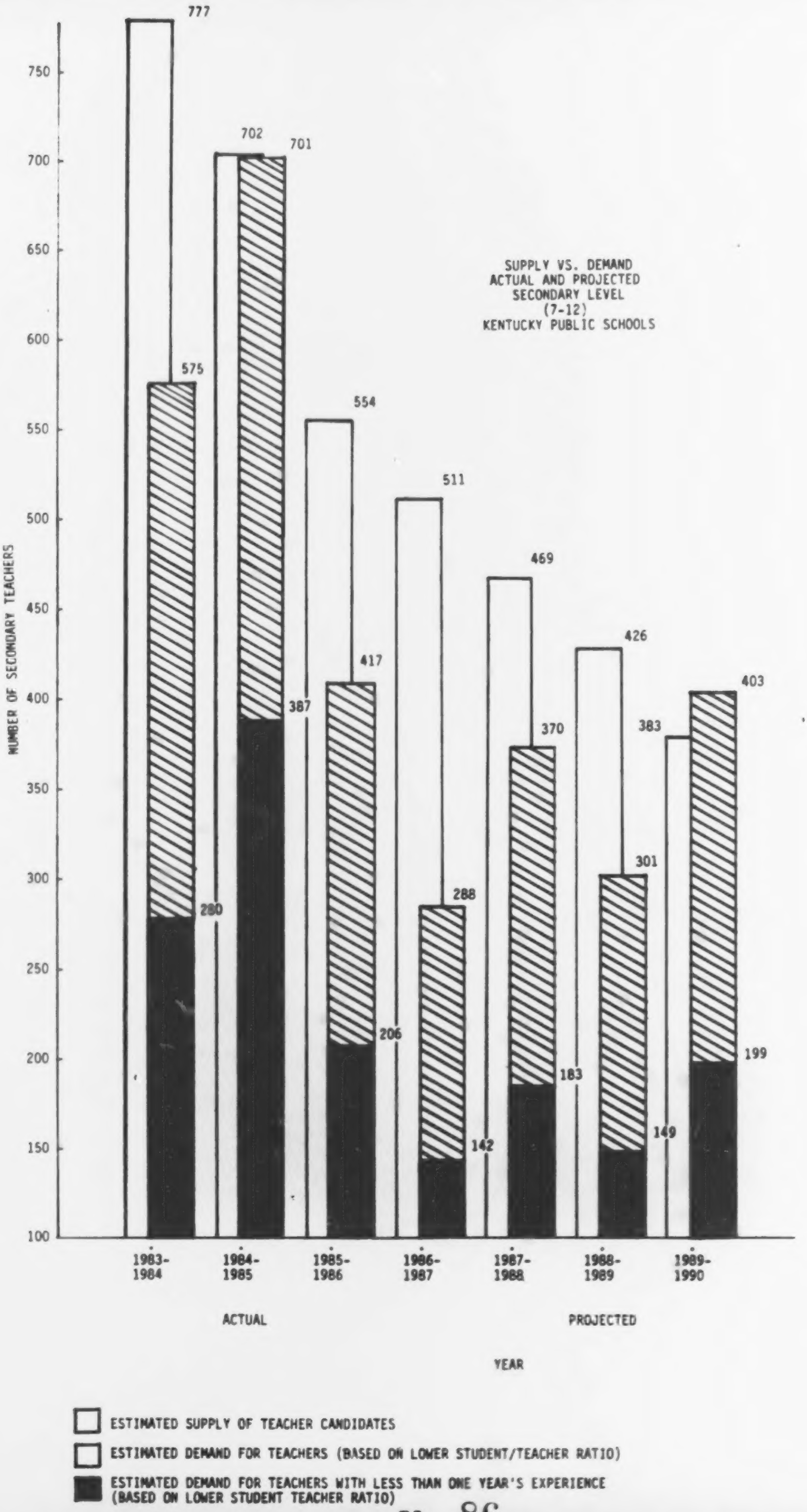
The teaching areas in Kentucky where shortages occur include distributive education, mathematics, foreign languages, science, special education and English. These areas also reflect similar trends at the national level. (Refer to Appendix IX.) This would tend to place teachers in these areas in a competitive position in the national job market. Major supply problems may occur should the Commonwealth of Kentucky fail to retain the teachers in these subject areas.

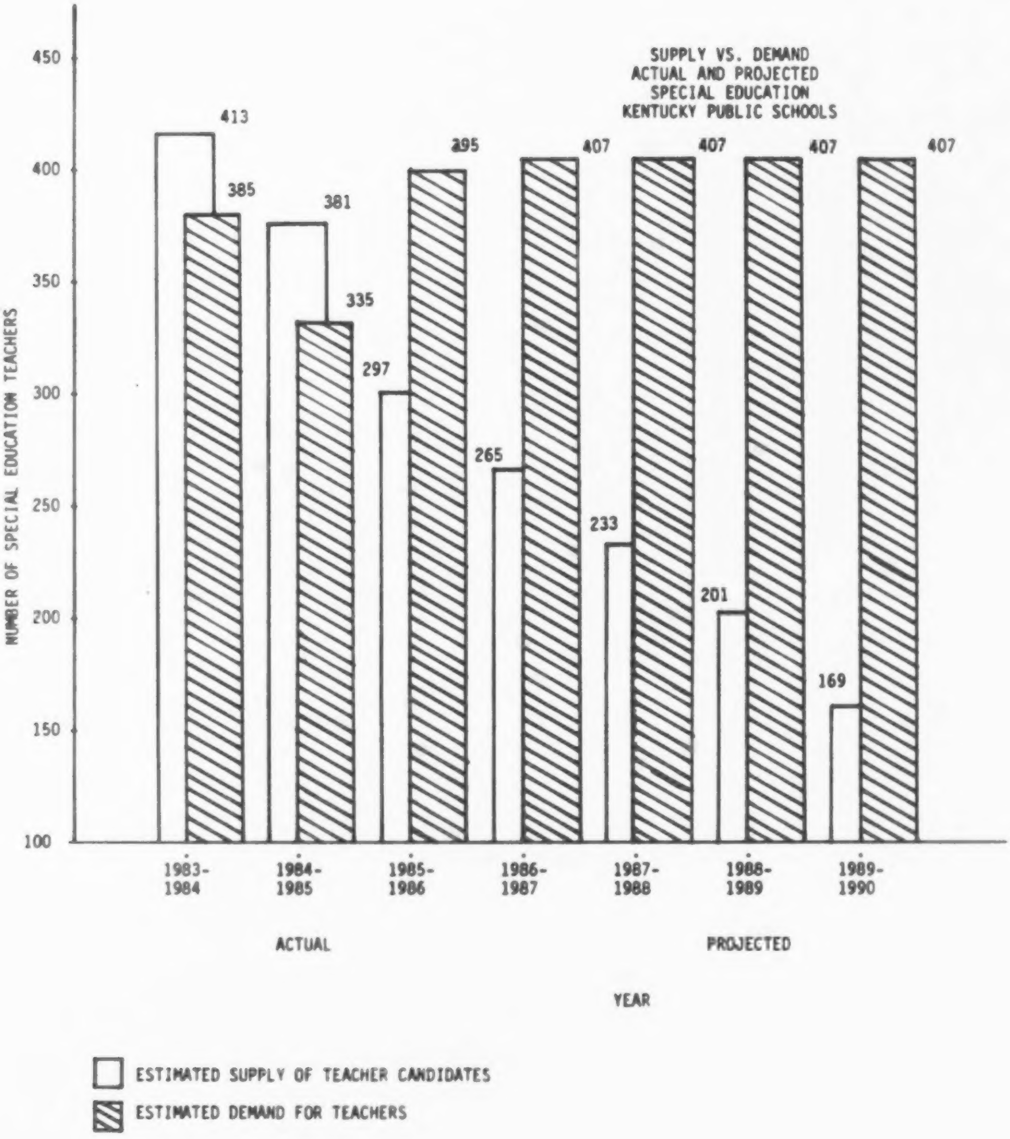
The areas of art and music also show a shortage. This may be attributed to an increased teacher demand brought about recently by the enforcement of statewide accreditation standards.

The fields of industrial arts, health and physical education, social sciences, business, and agriculture all have a surplus.

Therefore, the supply of teachers in these teaching areas should continue to meet the projected demand. A graphic representation of current and projected openings can be observed for the elementary level (Figure 4) and at the secondary level (Figure 5) and in special education (Figure 6).


SUPPLY VS. DEMAND
ACTUAL AND PROJECTED
ELEMENTARY LEVEL
(K-6)
KENTUCKY PUBLIC SCHOOLS
NUMBER OF ELEMENTARY TEACHERS
1350
1300
1250
1200
1150
1100
1050
1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
1173
516
270
1068
707
415
962
1189
635
919
853
456
877
750
401
835
683
365
792
600
321
1983-
1984
1984-
1985
1985-
1986
1986-
1987
1987-
1988
1988-
1989
1989-
1990
ACTUAL
PROJECTED
YEAR
ESTIMATED SUPPLY OF TEACHER CANDIDATES
ESTIMATED DEMAND FOR TEACHERS (BASED ON LOWER STUDENT/TEACHER RATIO)
ESTIMATED DEMAND FOR TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE
(BASED ON LOWER STUDENT TEACHER RATIO)


SUPPLY VS. DEMAND
ACTUAL AND PROJECTED
SECONDARY LEVEL
(7-12)
KENTUCKY PUBLIC SCHOOLS


SUPPLY VS. DEMAND
ACTUAL AND PROJECTED
SPECIAL EDUCATION
KENTUCKY PUBLIC SCHOOLS
NUMBER OF SPECIAL EDUCATION TEACHERS
450
400
350
300
250
200
150
100
413
385
381
335
297
295
265
407
233
407
201
407
169
407
1983-
1984
1984-
1985
1985-
1986
1986-
1987
1987-
1988
1988-
1989
1989-
1990
ACTUAL
PROJECTED
YEAR
ESTIMATED SUPPLY OF TEACHER CANDIDATES
ESTIMATED DEMAND FOR TEACHERS

Contingency Plans:

Although the Commonwealth of Kentucky has experienced a general surplus of teacher candidates in some teaching fields, the level of that surplus and the projected surplus are diminishing. In other areas of the country shortages are already beginning to be experienced. The Southwest in particular will need a great many teachers. California, for example, has estimated that they will need 100,000 teachers by 1990 (McLaughlin, 1985). The State of Texas has also cited a need of major proportion for the next ten years. As shortages occur in other areas of the country, the market will become increasingly competitive. Teacher candidates from states that represent a more balanced market but pay their teachers less will become suppliers for those states in need of personnel in various teaching areas. Should such variables as college enrollments and the number of newly certified teachers continue to decline, and the vacancy rate to increase, Kentucky may begin to experience major teacher shortages.

In response to these possibilities, the Kentucky Department of Education has developed a contingency plan for possible teacher shortages. The final report from an ad hoc committee recommended several long and short-term strategies to address a shortage should it occur. Among these are enhancing working conditions and compensation for teachers; offering recruitment incentives; establishing a career ladder; making use of emergency certification; increasing student/teacher ratios; increasing use of instructional media and technology; and adapting alternative teacher training programs. (Committee to Develop Contingency Plans for Possible Teacher Shortages, 1985).

It is generally felt that dwindling enrollments and the out-migration of teachers to other areas of the country will be a primary cause of the shortage. It has been predicted that should these conditions occur Kentucky will be affected during the early to mid-1990's. Kentucky is experiencing spot shortages at the present time and this will become a bigger problem.

RELATED ISSUES THAT AFFECT FUTURE TEACHER AVAILABILITY

As was suggested earlier in this report, over the last few years teacher education has been under scrutiny from a variety of commissions and study groups. The quality of teachers and the quality of teacher education has been the focus of many of these investigations. The most recent report entitled "A Call For Change in Teacher Education", (National Commission for Excellence in Teacher Education, 1985) focused on how prospective teachers were recruited, trained, and employed. The Commission also investigated the ways new teachers became fully competent professionals. The Commission reported that virtually every part of teacher education from pre-service training to the continuing professional development of senior teachers could be improved. Although many of the trends that have been identified are national issues, they have their origins at the state and local levels. The following issues are drawn from this national report, as well as other sources. Efforts are made to address these issues in the context of Kentucky concerns.

Future Teacher Availability:

In the years ahead the supply and demand issue for quality teacher education candidates at the national level will be a central issue. The number of traditional-age, entrance-level freshmen will decline greatly by 1990, as the number of 18-year-olds will be down eight million from 1980 levels. (National Commission for Excellence in Teacher Education, 1985.) During the same period, the number of elementary-age children will be increasing as the birth rates continue to grow well into the nineties.

Although the Commonwealth of Kentucky appears to meet the demand for public school teachers and will most likely continue to meet its demand for the next five years, enrollment problems in teacher education programs may produce some shortages between 1995 and the year 2000. Nationally, there appears to be a steep decline particularly in the number of minority teachers while the percentage of minority children in the schools is rising. (Commission for Educational Quality, 1985.) Since minority children need to identify with successful role models, recruitment of minority teachers should be an issue of concern.

At present, figures suggest that Kentucky's teacher education supply has experienced a surplus in many areas. Should this trend continue, Kentucky's educational institutions will be in a position to play a major role in providing teachers for a variety of other areas in the country which currently experience or will soon experience teacher shortages. However, if Kentucky is to be considered seriously as a "feeder state," our programs of teacher preparation should be willing to compete in quality on a national level.

In order to attract professionally oriented candidates to teacher education careers, teaching as a whole must change its image and assume the profile of a true profession.

The public image of teachers is a problem that must be overcome. Much of this problem has been brought about by singling out isolated variables used in the overall admissions process into teacher education programs. Scores on the the Scholastic Aptitude Test (SAT) and the American College Testing (ACT) programs frequently used for college admissions have been somewhat lower for education students than others who indicate pursuit of study in other fields. It should also be remembered there is a difference in those who declare themselves as considering to be education majors on the ACT and those who are actually admitted to the programs. Also, if one examines other variables such as grade point averages, there is no significant difference, according to a study in which education majors in the first two years of college were compared with students declared to be majors in other fields. (Winkler, 1985.) Generally speaking, the first two years of college are liberal arts and general studies components which every student is required to take.

Recruitment of teacher candidates has been difficult to say the least. Most colleges within the Kentucky state system have experienced enrollment declines over the last five years. Although programs of preparation require more scholarship now, students enrolled in education are still sometimes judged by faculty or peers to be lower in status than students in other programs. Many institutions spend twice as much money preparing engineering or business graduates than they spend on teaching candidates. (Winkler, 1985) Funding priorities continue to be a problem even when college administrators are aware that the training of teachers in new technologies is essential to a more effective transition into the "information society" and the "new industrial/service-oriented areas." (Perelman, 1985.) Since public school teachers are responsible for providing the pre-college educational preparation of students who will enter all areas of future study, including engineering and business, it stands to reason that funding to support the training of public school teachers should have parity with other disciplines. Enforcing rigorous standards is only part of the solution. Incentives will be needed to encourage and attract young people to education. Financial incentives including grants, scholarships, fellowships and loans similar to the National Defense Student Loans will be needed.

Since the present mean age range of public school teachers is 36 to 40, there will be a need to bring in some younger teachers to maintain a balance as this population approaches middle age. (Refer to Appendix XI.)

Older people considering mid-career changes should have the opportunity to enter education with minimal problems, particularly if they have vital and transferable skills in such areas as science and mathematics. Recent demographic trends indicate that the older segment of our population is the fastest growing. This group may be interested in contributing to the schooling of our society. (Fristritzer, 1985.) Many have suggested that the retired population in our society might be used in a variety of supportive roles in the classroom, for example, providing tutorial help for students who have fallen out of the mainstream of the schooling process. Bringing the American public back into the schools and getting them actively involved should be among the priorities of education reform. As Emily Fristritzer, of the

National Center for Education Information indicated, "Education is too important to leave entirely to the educators." (Fristritzer, 1985.)

Finally, there exists a large reserve pool of professionally trained individuals who are certified but for one reason or another are not presently working in teacher education. Efforts should be made to attract them back into education.

Attrition:

As we have already pointed out, attrition is an important variable to consider in efforts to maintain the level of quality teachers. Low teachers' salaries have been cited as a major factor in teacher attrition. The National Commission cited that 87 percent of teachers leaving the profession indicate that inadequate salaries are a factor in leaving education. (Winkler, 1985.) Salaries should be commensurate with other professions that require equal educational preparation and the maintenance of and the continuing upgrading of professional skills. The NCES report conducted in 1985 compared teaching with ten other career areas with comparable professional preparation, and the beginning salaries were lower than any other field. (National Center for Educational Statistics, 1983.) The salaries of teachers reach a ceiling much sooner and at a lower level than do the salaries of any other professional group with similar preparation. (Hammond, 1984.) Also, there is a general misconception that collective bargaining has improved teacher salaries. Actually, the average salary declined approximately 15 percent in real dollar terms between the years of 1971 to 1980. (National Center for Education Statistics, 1983.) This is particularly disheartening when you realize that during that same period, the Nationwide Opinion Poll indicated the majority of teachers now have at least a Master's degree and approximately 13 years of experience. (National Education Association, 1983). Over the last five years, the average teacher salary was $17,933 for elementary teachers; $19,391 for secondary teachers; and $16,952 for special education teachers.

The National Education Association conducts a national survey annually concerning the various conditions under which professional educators work. One of the questions that they ask each year is, "if you could go back and start all over again, would you still become a teacher?" (Hammond, 1984.) The proportion of respondents indicating that they would not teach again more than tripled in the ten-year period from 1971-81. (National Education Association, 1982). In 1981, 40 percent responded negatively. (National Education Association, 1982.)

Generally, teachers are frustrated and dissatisfied with a great many things. Many teachers feel that they are looked upon as bureaucrats and have very little autonomy. They also feel that they have very little support from administrators, policy makers or even parents.

Certification and Accreditation:

Certification of teachers is a primary responsibility of the state, and standards vary from one state to another. Teacher education programs are generally designed to meet the standards of their state. The Kentucky Council on Higher Education is responsible for program review and the approval of teacher education programs in state-supported institutions throughout the Commonwealth. The Kentucky Department of Education issues certification and also conducts reviews. Both agencies encourage institutions to seek national voluntary accreditation. Such agencies as the National Council for Accreditation of Teacher Education (NCATE) work with the profession to define universal standards which are used in peer review. NCATE shall focus on these clearly defined standards, and institutions should make a serious effort to meet these standards. State agencies shall also place greater emphasis on accreditation and peer review as a tool for improving teacher education and the institutions that provide such training. When national standards are used, reciprocity of teacher certification becomes easier, which in turn allows for recruitment of better teachers.

One of the major weaknesses of accreditation reviews cited by Christopher Wheeler is that most teacher education evaluations only summarize the presence or absence of requirements met or unmet rather than subject the institutions to in-depth qualitative reviews. (Wheeler, 1980.) He goes on to note that NCATE can only recommend and suggest improvements, not require them. In fact, his report noted that 21 institutions which were denied NCATE approval in 16 different states actually continued to receive state recognition. Also, only 4 states out of the 16 took any action to suspend the programs or use the NCATE reviews to make actual improvements. (Wheeler, 1980.) The Wheeler report is just one of several that suggest that many state education authorities do not value the national accreditation process or use it effectively.

Richard Kunkel, Executive Director of NCATE has indicated that major efforts are being made to bring about better relations with the states. Recently, the National Association of State Boards of Education (NASBE) voted for the first time to seek membership in the National Council for the Accreditation of Teacher Education (NCATE) and a full constituent seat was granted. (Teacher Education Reports, 1985.) Generally, the interest by NASBE in NCATE is viewed as evidence of renewed concern for the quality of teacher education and high standards within the teaching profession.

Pre-Service and In-Service Training:

The preparation of teachers and the continuing professional development of teachers are perhaps the most critical areas in teacher education today. Future teachers must have programs based on accepted research findings in cognitive psychology, human development, teaching and learning methodology, educational technology, psychometrics and diagnostic techniques. "Research suggests that teachers should have opportunities to try out new skills in simulated settings and receive feedback and follow-up coaching to insure that their application leads to effective instruction." (National Commission for Excellence in Teacher Education, 1985.) Furthermore, in-service training should be designed to further develop skills and knowledge acquired during pre-service training. Accumulating graduate credits towards an advanced degree is not the total answer for continued self-renewal. Rather, in-service training and professional development should be a broad and diversified activity. This activity should be linked with incentives that create opportunities for career advancement. (I.e., moving up a career ladder; recognition as a master teacher; promotion to supervisory roles and/or administrative responsibilities). In this way, school personnel will work towards roles of instructional leadership devoted to high quality academic instruction.

Resources and Support Services:

Teacher education is like other professions in that advancement in new technologies and research in human development have made it possible to improve conditions and produce a higher quality product. In a recent report to the Council of State Planning Agencies, Lewis V. Perelman suggested that it is technologically feasible to increase the productivity of education. He states ". . . The revolution now underway in computation and telecommunication technology actually offers the opportunity to vastly expand the productivity of the learning process for learners of all ages" (Perelman, 1984). Yet after 60 years of research, policy makers in our educational institutions treat teacher education programs as a "low cost program funding this area as a liberal arts lecture course of study." (National Commission for Excellence in Teacher Education, 1985). The

Commission suggests that the laboratory and field experiences, specialized technologies such as video equipment and microcomputers, and instructional materials development laboratories are needed to support quality instruction in a modern environment. "To fund teacher education based simply on lecture courses is inadequate." (National Commission for Excellence in Teacher Education, 1985.) Much of the research in teaching and learning that has recently emerged has suggested that different treatments work better for different people under different conditions. As Heinich has pointed out, "there are no panaceas." (Heinich, Molenda, Russell, 1982.) He says that new instructional methods involving applied technology present the new challenge "of matching individual learners with the appropriate subject matter, pitched at the right level, and presented in a compatible medium at the optimal pace in the most meaningful sequence" (Heinich, Molenda, Russell, 1982.) Given the new directions that modern teaching and learning has taken, greater financial support in regard to teacher education is essential.

SUMMARY

In reviewing the related issues that affect future teacher availability many variables have been brought to light. In the literature and recent reports some of the conditions involved in teacher education have been explored in more depth. The objective of this section of the report was to provide a short summation of some of the more serious areas. Discussion has centered around supply and demand, the general public image of the profession, pre-service and in-service training, general working conditions, salary, teacher morale, certification and accreditation, and, finally, resources and instructional support services. No one is any more important than the other. All of these issues have an affect on future teacher availability and they will need to be addressed.

SUMMARY AND CONCLUSIONS

The data from this project were obtained primarily from the Kentucky Department of Education and the Council on Higher Education. The validity of the study is totally dependent on the accuracy of the data provided. From this data speculative estimates for teacher demand and teacher supply were determined for the next five academic years (1985-1986) through (1989-1990). Given these projections, conditions of teacher shortages and/or oversupply can be reviewed. It should be emphasized that these estimates are designed to present the best of possible conditions. Interjection of any number of variables could change projections in either a positive or negative manner.

Conclusions:

- Enrollments in public schools throughout the Commonwealth of Kentucky have steadily declined during the last decade. This trend is expected to reverse at the elementary level during the next three years. The increase in enrollment is a result of both an increase in the birth rate and the establishment of mandatory kindergarten as a prerequisite to entering the first grade. Secondary level enrollments, however, are expected to experience a major decline. Nevertheless, the earlier years of the 1990's should begin to feel the impact of the enrollment increase previously experienced at the elementary level. Private school enrollment has remained approximately the same and is expected to continue to represent approximately 10 percent of the total enrollment of grades K-12.

- Teacher demand is directly related to predefined student/teacher ratios established by state law. A ratio of 25 students to one teacher was established for grades K-3 and a ratio of 27 students to one teacher was established for grades 4-12. An upper limit of 4 additional students per teacher is the maximum acceptable class size. However, the lower limit is preferred. Recent state legislation will gradually reduce these ratios. However, should a teacher shortage prevail, contingency plans recommend that this legislation be changed.

- The number of teachers employed for the last five years generally fell within the pre-established range of upper and lower limit student/teacher ratios. Projected teacher demand directly follows projected enrollment trends. There is an expected increase in the demand of elementary school teachers for the next three years. By 1988-1989, this demand will diminish. Secondary teacher demand is expected to decline steadily for the next five years. The demand for special education teachers is expected to remain constant.

- Teacher vacancies have a major impact on the number of faculty openings which need to be filled each year. In lieu of declining enrollments, especially at the secondary level, vacancies are the most important cause for teacher openings. A review of the data on teacher vacancies for the last five years, indicates that economic conditions are an influence. In 1980-81, vacancies were relatively high. During the recession period of 1982-83, vacancies declined. As economic conditions improved, teacher vacancies began to increase again. Should the economy continue to improve, vacancies should continue to increase. The projected rate for elementary teacher vacancies are (5.24%) and the secondary level vacancy rate is (5.40%). Subject areas displaying high vacancy rates are distributive education (9.40%), special education (9.77%), industrial arts (7.53%), music (8.03%), foreign languages (9.48%), art (6.07%), home economics (6.38%), and mathematics at (6.35%). Low teacher salaries and poor working conditions have been cited in various studies as major factors attributing to teacher vacancies. Dissatisfaction with administrative support was also expressed by forty percent of the teachers surveyed in a nation wide study. (National Commission for Excellence in Teacher Education, 1985.)

o With the exception of the early elementary grades, there will be no teacher openings due to growth for the next five years.

- The supply of newly certified teacher candidates is projected to decrease by a substantial amount over the next five years. The rate of decline for elementary level teacher candidates is projected to be 18 percent; the number of secondary candidates is expected to decline by 31 percent; and the number of special education teacher candidates is projected to decline by 43 percent.

- The general decline of new teacher candidates may be, in part, attributed to the declining enrollments in Kentucky's teacher education programs. The downward trend in total college enrollments is a result of a general reduction in the traditional college age population. However, in teacher education other variables such as the mandatory teachers examination (NTE), the one year internship, and the general elevation of academic standards in Kentucky's state supported teacher education programs may also have some effect on the supply of education graduates and teacher candidates in general.

- With the exception of the 1985-86 academic year, Kentucky is expected to meet its need for public school teachers at the elementary level. However, the projected supply is minimal. The shortage during 1985-86 academic year was brought about by the additional demand for kindergarten teachers and slight demographic increases.

- In spite of a projected decline in student enrollments at the secondary level, teacher shortages in certain subject areas are predicted. The areas projected to experience major shortages include distributive education, mathematics, foreign languages, science and special education. Special education and mathematics are of major concern. The number of mathematics teacher candidates is expected to decline by 38 percent while the number of openings is expected to increase by 29 percent. Special education teacher candidates are expected to decline by 43 percent even though teacher openings are expected to remain constant.

- Areas that are projected to experience a shortage by the end of the decade include art, home economics, music and English.

- Areas which are projected to experience a surplus include industrial arts, health/physical education, social sciences, business and agriculture.

- When examining the general supply of certification candidates by origin of preparation, it was observed that the Commonwealth of Kentucky draws approximately 25 percent of its teachers from out of state. The remainder are prepared in public and independent colleges located in Kentucky. The number of out of state prepared teachers being certified in Kentucky has declined slightly over the last three years. Approximately a third of the foreign language teachers, 29 percent of the science and special education teacher candidates, 28 percent of the math teacher candidates and 27 percent of the music teacher candidates come from out of state. A fairly large percentage of art, physical education and business teachers also are prepared out of state. As the teacher shortage in other states expands or should other states make major improvements in salaries and working conditions, this vital segment of teacher supply may be reduced. In fact, there may be some observable spot shortages in some teaching fields as a direct result of a reduction of in-migrating teachers. Therefore, all of these areas with a high percentage of out of state prepared teacher candidates will require close monitoring.

- In areas where major surpluses occur, Kentucky's educational institutions will be in a position to provide teachers to other areas of the country where teacher shortages exist. In order to be considered seriously as a supply or "feeder" state, however, Kentucky's teacher education programs must be willing to compete on a national level in terms of quality.

- In order that Kentucky prepared teachers may compete on a national level, improvements in both pre-service and in-service training must be made. A modern professional educator should be well versed in his or her subject area specialty and should display a general understanding of a variety of arts and the sciences. In addition, future teachers must have programs based on accepted research findings in cognitive psychology, human development, teaching and learning methodology, educational technology, diagnostic techniques and psychometrics. This broad background of preparation should arm the teacher with the "tools" of the profession in order to promote good teaching and learning.

o An elevated level of professionalism in teacher education will lead to a greater sense of responsibility for continual self-renewal. In-service training will be needed as an integral part of these renewed efforts. This in-service training and professional development should be a broad and diversified activity. These programs should be designed to focus on improving the learning conditions of students and to generally promote a more efficient and effective professional.

When reviewing the current and projected conditions, the Kentucky education enterprise will experience imbalances in regard to issues in the supply and demand of classroom teachers within the public school system for the next five years. Spot shortages will occur in several disciplines and in some parts of the state.

Towards the end of the decade, many more shortages will be observed. Major issues on the quality of teacher education and the quality of working conditions, including salaries, must be addressed in order to make major improvements. If improvements are made in the preparation of future teachers at Kentucky's state supported institutions, Kentucky will be a supplier of some subject area teachers for other states experiencing shortages. However, incentives should be created in disciplines where shortages exist in Kentucky to attract and retain Kentucky trained teachers.

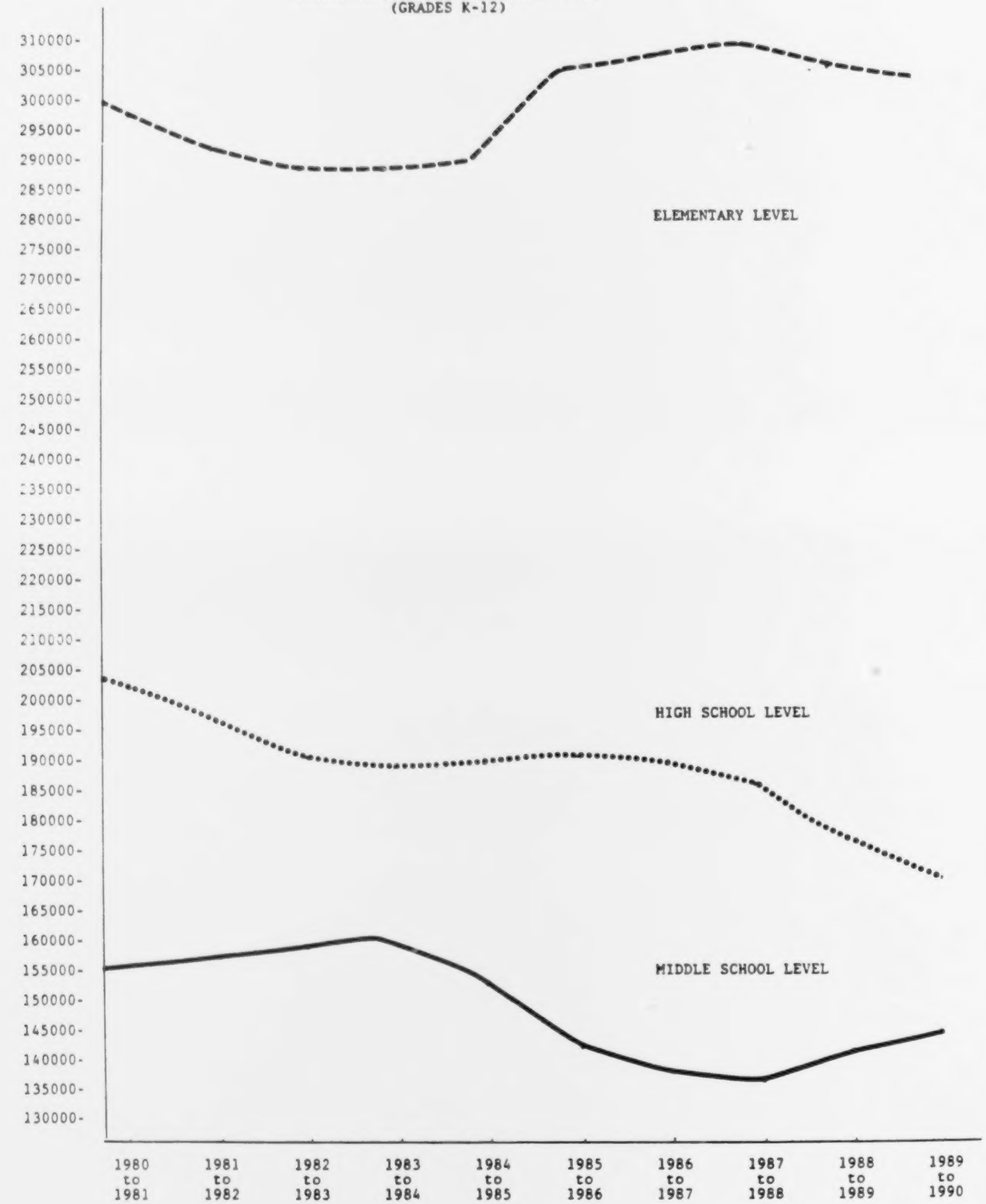
Contingency plans have been developed by the Kentucky Council on Teacher Education and Certification to address the teacher shortage issue. Several recommendations have been adapted from the Rand Corporation study. In addition, other recommendations were added. Refer to the appendices for the full draft.

The critical importance of the supply and demand issue was brought to light by the Rand Corporation in its report Beyond the Commission: The Coming Crisis in Teaching. It states, "Unless major changes are made in the structure of the teaching profession, so that teaching become an attractive career alternative for talented individuals, we will in a very few years face widespread shortages of qualified teachers. We will be forced to hire the least academically able student to fill vacancies, and they will become the tenured teaching force for the next two generations of American school children." (Rand Corporation, 1984.)

George W. Bonham, the founder of Change magazine summarized it best in his scenario of bad news and good news: "The bad news is that there continues to be important encouragement to keep business as usual. The good news is that serious and commendable efforts are beginning to be made to make educational enterprises sufficiently resilient and quality-conscious, to have them cope and have them turn hard times into new-found opportunities." (Bonham, 1980.)

APPENDICES

APPENDIX I
ENROLLMENT TRENDS
ELEMENTARY, MIDDLE AND HIGH SCHOOL
(GRADES K-12)



APPENDIX II

TOTAL ENROLLMENT
ACTUAL AND PROJECTED
PUBLIC AND PRIVATE
(K-12)

Year	Public	Percent	Private	Percent	Total
1980-81	655,439	90.00	72,214	9.92	727,635
1981-82	645,606	89.97	72,002	10.03	717,608
1982-83	637,848	89.88	71,793	10.12	709,641
1983-84	635,185	89.96	73,994	10.50	706,041
1984-85	632,049	89.95	70.615	10.05	702,664
1985-86	640,318	89.63	74,090	10.37	714,408
1986-87	636,136	89.59	73,949	10.42	710,085
1987-88	631,699	89.49	74,750	10.45	705,449
1988-89	623,933	89.49	74,273	10.51	697,206
1989-90	617,103	89.56	72,896	10.57	689,999
				10.29	

Average Rate: Actual and Projected

TOTAL ENROLLMENT
ACTUAL AND PROJECTED
PUBLIC AND PRIVATE
ELEMENTARY (K-6)

Year	Public	Percent	Private	Percent	Total
1980-81	349,295	89.21	42,226	10.79	391,521
1981-82	344,774	89.10	42,196	10.90	286,970
1982-83	342,034	89.07	41,965	10.93	383,999
1983-84	327,821	88.98	41.841	11.02	379,662
1984-85	335,835	88.88	42,035	11.12	377,870
1985-86	348,983	88.33	46,093	11.67	395,076
1986-87	352,768	88.33	46,617	11.67	399,383
1987-88	353,662	88.32	46,754	11.68	400,416
1988-89	352,773	88.34	46,553	11.66	399,326
1989-90	349,800	88.35	46.118	11.65	395,918
				11.31	

Average Rate: Actual and Projected

TOTAL ENROLLMENT
ACTUAL AND PROJECTED
PUBLIC AND PRIVATE
SECONDARY (7-12)

Year	Public	Percent	Private	Percent	Total
1980-81	306,144	91.08	29,988	8.92	336,132
1981-82	300,832	90.98	29,806	9.02	330,638
1982-83	295,814	90.84	29,828	9.16	325,642
1983-84	297,364	91.10	32,153	9.85	326,379
1984-85	296,214	91.20	28,580	8.62	324,794
1985-86	291,335	91.23	27,997	8.56	319,332
1986-87	283,368	91.20	27,335	8.80	310,700
1987-88	278,037	91.15	26,996	8.85	305,033
1988-89	271,160	91.03	26,720	8.97	297,880
1989-90	267,303	90.89	26,778	9.11	294,081
				8.986	

Average Rate: Actual and Projected

TOTAL ENROLLMENT
ACTUAL AND PROJECTED
PUBLIC AND PRIVATE
SPECIAL EDUCATION

Year	Public	Percent	Private	Percent	Total
1980-81	13,833	92.47	966	6.53	14,799
1981-82	12,744	92.17	1,082	7.83	13,826
1982-83	12,520	92.23	1,055	7.77	13,575
1983-84	12,930	92.08	1,111	7.91	14,041
1984-85	12,372	91.08	1,212	8.92	13,584
1985-86	12,500	91.24	1,200	8.76	13,700
1986-87	12,500	91.24	1,200	8.76	13,700
1987-88	12,500	91.24	1,200	8.76	13,700
1988-89	12,500	91.24	1,200	8.76	13,700
1989-90	12,500	91.24	1,200	8.76	13,700
				8.28	

Average Rate: Actual and Projected

APPENDIX III

Student-Teacher Ratios
Special Areas

Area	1980-81	1981-82	1982-83	1983-84	1984-85	Projected
El. Reading	268	286	300	311	297	294
El. Art	2183	2128	2086	1005	852	909*
El. Music	582	583	597	528	487	502*
El. P.E.	689	720	717	518	507	511*
Spec. Ed.	3	3	3	3	3	3
Voc. Ed.	103	100	95	92	97	97

*Projections were based on 1983-84 and 1984-85 only.

APPENDIX IV
PERCENT OF TOTAL
TEACHER DEMAND BY AREA
SECONDARY LEVEL (7-12)

Year	1980-81	1981-82	1982-83	1983-84	1984-85	Projected
Other Self-Cont.	3.01	2.80	2.84	2.56	1.68	2.35
Science	11.73	11.50	11.49	11.26	11.73	11.59
Math	15.04	14.82	14.85	14.18	14.58	14.67
Social Science	11.64	11.98	11.77	11.29	11.38	11.55
English	16.71	17.10	17.23	16.16	16.93	16.85
Foreign Lang.	1.91	1.86	1.92	1.91	2.53	2.15
Dist. Ed.	0.82	0.77	0.68	0.48	0.47	0.60
Business	5.49	5.56	5.72	6.25	6.13	5.91
Indust. Art	3.73	3.79	3.72	3.75	3.69	3.72
Agriculture	1.86	1.88	1.84	1.88	1.79	1.84
Home Ec.	4.07	4.08	3.58	3.69	3.54	3.73
Other	10.41	10.61	11.29	11.52	10.07	10.60
Secondary Reading	3.57	3.36	3.22	3.18	3.33	3.33
Secondary Art	2.08	2.03	2.00	2.53	2.77	2.40
Secondary P.E.	5.65	5.64	5.62	6.87	6.72	6.26
Secondary Music	2.28	2.21	2.24	2.49	2.67	2.45

APPENDIX V

Percent of New Hires
With Zero Years Experience

Year Area	1980-81	1981-82	1982-83	1983-84	1984-85
Self Cont.	78.47	76.13	91.55	84.96	92.78
Special Ed.	78.66	78.77	82.67	90.44	89.08
Science	57.50	76.19	79.25	83.05	98.70
Math.	81.33	82.69	89.66	82.95	95.54
Soc. Sci.	78.43	70.00	80.00	73.68	90.00
English	66.32	74.07	68.18	90.57	87.65
Foreign Lang.	60.00	50.00	66.67	58.33	55.55
Music	70.37	60.00	95.83	81.03	88.64
Art	78.26	75.00	56.25	70.83	96.43
Dist. Ed.	66.67	60.00	66.67	27.78	50.00
Business	55.56	63.64	86.36	100.00	87.50
Indus. Art	55.56	50.00	57.69	53.57	76.67
Agriculture	71.43	100.00	93.33	85.71	83.33
Phy. Ed.	85.97	88.46	90.00	93.22	100.00
Home Ec.	52.00	61.54	76.47	86.11	100.00
Other	68.75	69.64	76.47	62.96	88.00
Total	74.56	74.82	83.99	83.49	91.20

APPENDIX V

Kentucky Department of Education
Alice McDonald, Superintendent of Public Instruction
Capital Plaza Tower, Frankfort, Kentucky 40601

May 13, 1985

Dr. Mike Gardone
Council on Higher Education
1050 US 127 South
West Frankfort Office Complex
Frankfort, KY 40601

Dear Dr. Gardone:

This letter is in response to a recent visit with Dr. David Murray concerning the Council's teacher supply study.

The printout shared by Dr. Murray indicated that data had been compiled on the expiration year of certification. By the nature of the teacher certification file it is virtually impossible to derive accurate information for any projection of certificates issuance per year.

When focusing on the expiration date (1990) of the certificate, any number of circumstances may be encountered; for example: a 1980 graduate; a 1970 graduate who completed a masters, but did not fulfill the experience requirement for life extension, or a 1960 graduate who renewed the regular provisional certificate on teaching experience.

In March 1982, the certification file was expanded to include the effective beginning date of each certificate. By keying on the effective beginning date, future studies of certificate issuance should prove to be more reliable.

If we can be of assistance in the future, feel free to advise.

Sincerely yours,

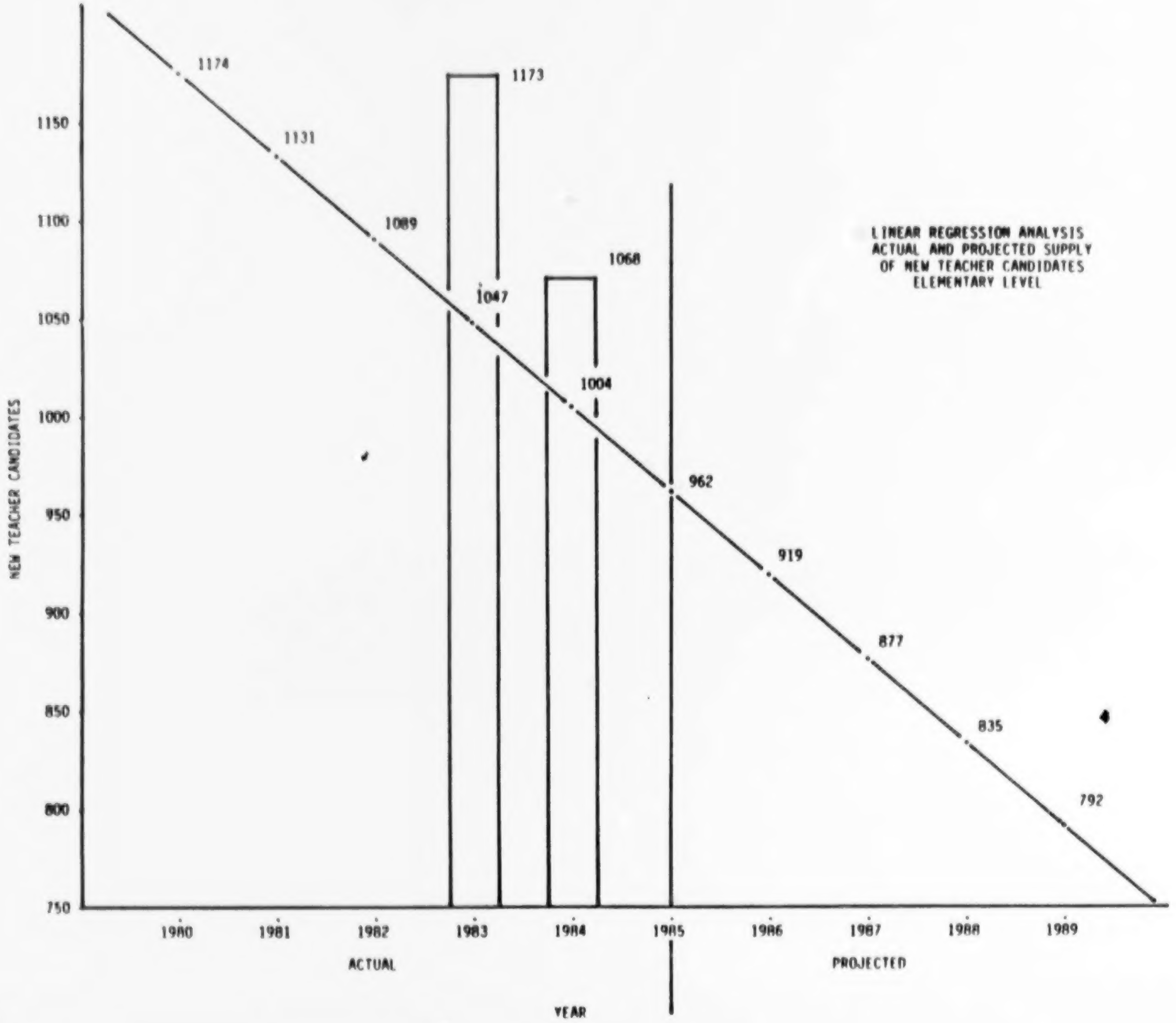
John Ledford

John Ledford, Consultant
Division of Teacher Education and Certification
Telephone: (502) 564-4609

JL:pae

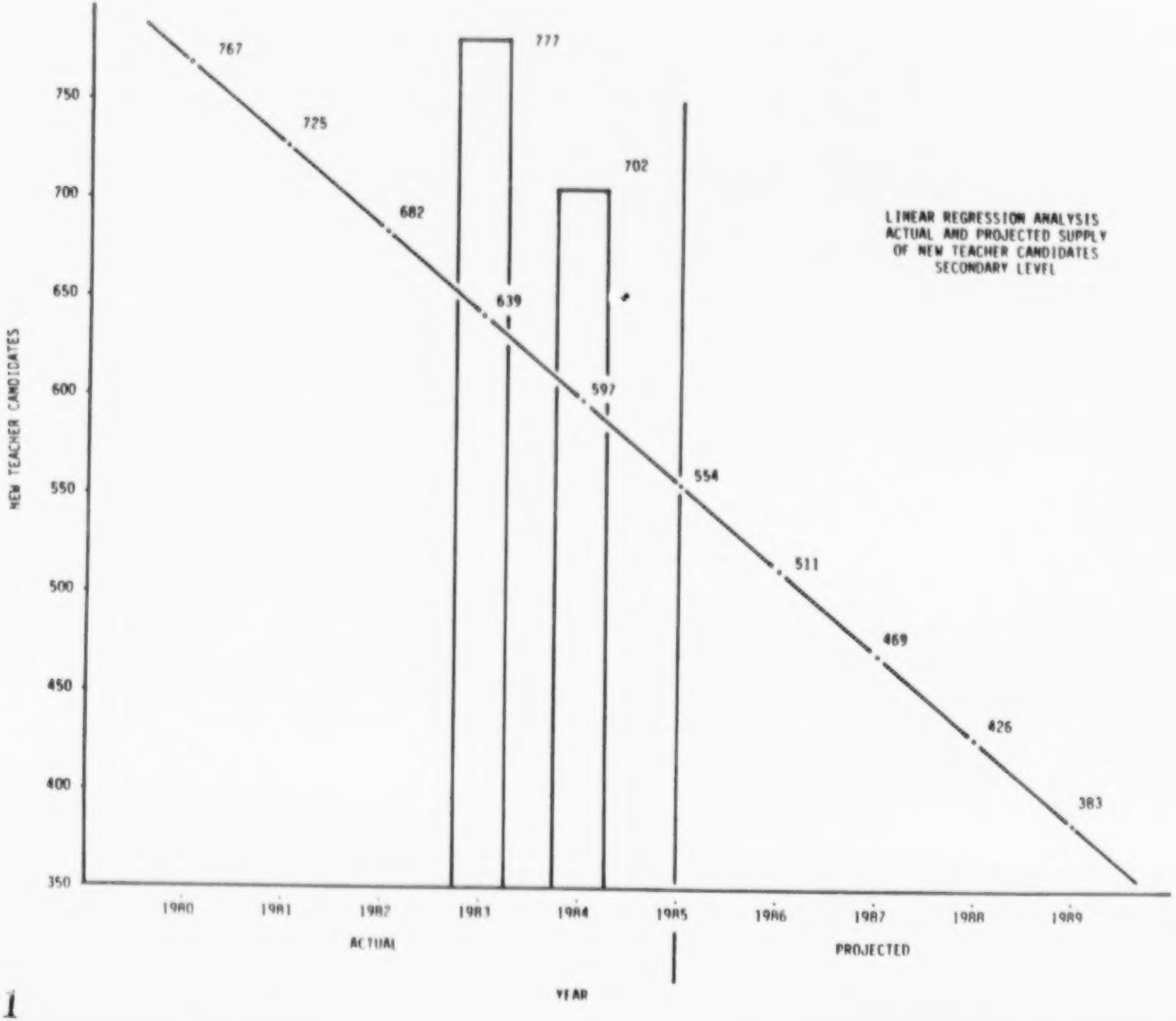
When our schools work, Kentucky works.

APPENDIX VII



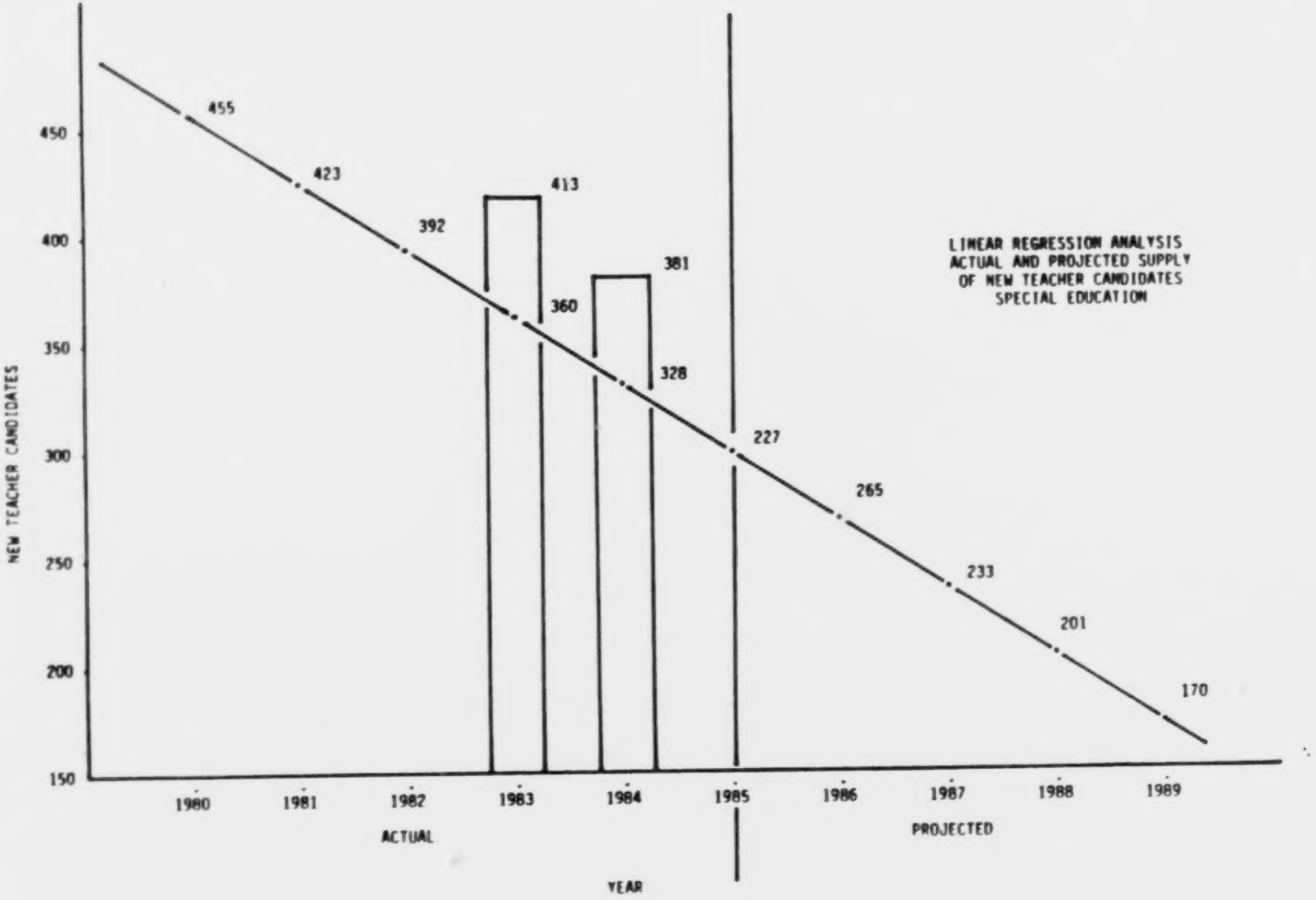
LINEAR REGRESSION ANALYSIS
ACTUAL AND PROJECTED SUPPLY
OF NEW TEACHER CANDIDATES
ELEMENTARY LEVEL

APPENDIX VII



LINEAR REGRESSION ANALYSIS
ACTUAL AND PROJECTED SUPPLY
OF NEW TEACHER CANDIDATES
SECONDARY LEVEL

APPENDIX VII



LINEAR REGRESSION ANALYSIS
ACTUAL AND PROJECTED SUPPLY
OF NEW TEACHER CANDIDATES
SPECIAL EDUCATION

APPENDIX VIII

DEPARTMENT OF EDUCATION
Office of Instruction
Division of Teacher Education and Certification
Frankfort, Kentucky 40601

Teacher Education Circular #367

October 24, 1984

MIDDLE GRADE TEACHER

PREPARATION-CERTIFICATION

A. Provisional Certificate for Teaching in the Middle Grades 1

B. Middle Grade Endorsement of Elementary Certification 4

C. Middle Grade Endorsement of High School Certification 5

These regulations of the Kentucky State Board of Education provide the guidelines by which teacher education institutions develop programs of preparation for middle grade teachers. These guidelines are not to be used as a check list by which individuals complete specific courses with the anticipation that certification will be issued upon their completion; instead, an individual should follow the program in effect at the college or university with the guidance of his college adviser.

A. PROVISIONAL CERTIFICATE FOR TEACHING IN THE MIDDLE GRADES
704 KAR 20:080

Section 1.

(1) The Provisional Certificate for Teaching in the Middle Grades 4-8 shall be issued in accordance with the pertinent Kentucky statutes and State Board of Education regulations to an applicant who has completed the approved program of preparation which corresponds to the certificate at a teacher education institution approved under the standards and procedures included in the Kentucky Standards for the Preparation-Certification of Professional School Personnel as adopted in 704 KAR 20:005.

(2) Effective until December 31, 1984, the Provisional Certificate for Teaching in the Middle Grades 4-8 shall be issued initially for a duration period which expires ten (10) years from the calendar year of completion of the curriculum requirements. This certificate shall be renewed for a ten (10) year period only upon completion of the Planned Fifth-Year Program. The certificate may be extended for life upon completion of three (3) years of successful teaching experience on a regular certificate and upon completion of the Planned Fifth-Year Program.

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(3) Effective January 1, 1985, the Provisional Certificate for Teaching in the Middle Grades shall be issued and renewed in accordance with the provisions of KRS 161.030 and 704 KAR 20:045.

(4) The Provisional Certificate for Teaching in the Middle Grades 4-8 shall be valid for teaching in grades four (4) through eight (8) and shall be endorsed for grades nine (9) through twelve (12) for any subject assignment in which the teacher holds a regular high school teaching major or minor or area of concentration.

CURRICULUM STANDARDS, TEC 35.0

Section 1.
The program of preparation for the Provisional Certificate for Teaching in the Middle Grades shall consist of a four-year program of teacher preparation including the bachelor's degree and including a general education component, a professional preparation component, and a specialization component as described in these standards. The general education component shall coincide with the standards included in the General Education Component of Teacher Preparation.

Section 2.
The professional preparation component for the Provisional Certificate for Teaching in the Middle Grades shall consist of at least 30 semester hours of credit which shall include:

(1) A minimum of 150 clock hours of clinical and field experiences prior to student teaching with at least 50 percent devoted to field experiences. It is understood that professional education courses at the undergraduate level should be associated with appropriate professional laboratory experiences; consequently, the clinical and field experiences will generally be divided among the courses.

(2) Human Growth and Development and Learning Theory shall include preparation in the amount of 8 semester hours of credit as follows: a study of how children grow, learn, and develop socially, physically, emotionally, and mentally; a study of children's developmental patterns through adolescence and the implications of this knowledge for teaching and learning; evaluation of learning processes; purposeful observation of the behavior of the child, adolescent, and youth. Additional preparation in the amount of 3 semester hours of credit shall provide for further depth of study with emphasis on pupils in the age range encompassed by the middle grades. Further preparation in an amount approximating 2 semester hours shall consist of the study of principles and procedures for adapting educational programs to accommodate the integration of exceptional children in the regular classroom to include: the identification of educationally relevant characteristics of gifted children and those with intellectual, emotional, physical, speech, language, auditory, and visual disabilities; utilization of relevant special education methods and materials; modification of the curriculum and classroom environment; and utilization of supportive services and personnel, including resource teachers.

(3) Basic Concepts Concerning Education shall include: a study of teaching as a profession; the purpose of education in a democracy; an analysis of the function of schools today; a study of classroom and school organization; the teacher's expanding role in the educational program;

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and analysis of each phase of the school program including guidance services, library services, evaluation, and reporting on a systemwide, schoolwide, and on an individual basis.

(4) Curriculum and Methodology for the Middle Grades shall include at least 6 semester hours of credit in the study of the philosophy and organization of instruction in the middle grades, curriculum concepts for the middle grades, methods for the teaching majors, discipline strategies, and classroom management techniques.

(5) Teaching Language Arts and Reading to include a minimum of 6 semester hours of credit in teaching the language arts and including two sequential courses with strong reading components.

(6) Supervised Student Teaching in the Middle Grades for a minimum of 8 semester hours of credit shall provide for a variety of experiences in the various functions of a teacher in a school and the community; experiences with children and young people in the learning process; experiences with various records necessary to the overall management of a school as performed by the classroom teacher; experiences with a total faculty in action in a unified approach to its program and problems; and seminar correlated with the student teaching experiences.

Section 3.
The specialization component of the curriculum for the Provisional Certificate for Teaching in the Middle Grades shall include a minimum of 48 semester hours of credit distributed among two middle grade teaching fields of 24 semester hours each.

> The requirements for each of the teaching majors for Middle grade certification are being studied and will probably be revised within the next three months (by March 1, 1985).

Section 4.
The middle grade teaching fields shall be identified as follows, and each field shall require a minimum of 24 semester hours of credit including the preparation as described:

(1) English and Communication: Composition--6 semester hours; linguistics, advanced composition, or phonetics--3 semester hours; adolescent literature--3 semester hours; speech--3 semester hours; American literature--3 semester hours; and electives 6 semester hours.

(2) Mathematics: Preparation to include 6 semester hours of credit designed especially to present the newer concepts of mathematics.

(3) Science: Preparation shall include 6 semester hours of credit in each of physical sciences, biological sciences, and earth sciences; at least one biological science and one physical science course must be accompanied by a laboratory requirement.

(4) Social Studies: Preparation shall be distributed among the subjects of United States history, geography, political science, economics, sociology, and social anthropology, so as to include at least 6 semester hours of credit in United States history, 6 semester hours of credit in geography, and 6 semester hours of credit from one of the remaining subjects.

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B. MIDDLE GRADE ENDORSEMENT OF ELEMENTARY CERTIFICATION
704 KAR 20:076

Section 1.
An endorsement for classroom teaching in the middle grades, four (4) through eight (8), shall be issued in accordance with the pertinent Kentucky statutes and State Board of Education regulations to an applicant who holds a certificate valid for classroom teaching in the elementary grades and who has completed the approved program of preparation for the middle grades endorsement at a teacher education institution approved under the standards and procedures included in the Kentucky Standards for the Preparation-Certification of Professional School Personnel.

Section 2.
(1) A one (1) year endorsement for classroom teaching in the middle grades 4-8 shall be made upon recommendation of the local school superintendent for an applicant who has completed at least six (6) semester hours of credit from the approved program of preparation for the middle grades endorsement at a teacher education institution approved under the standards and procedures included in the Kentucky Standards for the Preparation-Certification of Professional School Personnel as adopted in 704 KAR 20:005.

(2) As a prerequisite for a one-year endorsement, the certificate application shall be accompanied by a statement from the superintendent of the local school district declaring that an emergency exists as described in the regulations governing emergency teacher certification, 704 KAR 20:120.

(3) Such a one (1) year certificate endorsement may be renewed for subsequent one (1) year periods upon completion of six (6) semester hours additional credit each year from the approved program.

CURRICULUM STANDARDS, TEC 28.0

Section 1.
The program of preparation for the further endorsement for classroom teaching in the middle grades of a certificate valid for classroom teaching in the elementary grades shall include the completion of the following:

(1) One of the middle grade teaching fields, with a minimum of 24 semester hours of credit, as specified in the curriculum standards for the certification of teachers in the middle grades.

(2) A course in human growth and development which provides for a depth of study with emphasis on pupils in the age range encompassed by the middle grades.

(3) A course dealing with the middle grades to include a basic study of the philosophy, organizational patterns, and curriculum concepts relating to the middle grades.

C. MIDDLE GRADE ENDORSEMENT OF HIGH SCHOOL CERTIFICATION
704 KAR 20:078

Section 1.
An endorsement for classroom teaching in the middle grades, four (4) through eight (8), shall be issued in accordance with the pertinent Kentucky statutes and State Board of Education regulations to an applicant who holds a certificate valid for classroom teaching at the high school level and who has completed the approved program of preparation for the middle grades endorsement at a teacher education institution approved under the standards and procedures included in the Kentucky Standards for the Preparation-Certification of Professional School Personnel as adopted in 704 KAR 20:005.

Section 2.
(1) A one (1) year endorsement for classroom teaching in the middle grades 4-8 shall be made upon recommendation of the local school superintendent for an applicant who has completed at least six (6) semester hours of credit from the approved program of preparation for the middle grades endorsement at a teacher education institution approved under the standards and procedures included in the Kentucky Standards for the Preparation-Certification of Professional School Personnel as adopted in 704 KAR 20:005.

(2) As a prerequisite for a one-year endorsement, the certificate application shall be accompanied by a statement from the superintendent of the local school district declaring that an emergency exists as described in the regulations governing emergency teacher certification, 704 KAR 20:120.

(3) Such a one (1) year certificate endorsement may be renewed for subsequent one (1) year periods upon completion of six (6) semester hours additional credit each year from the approved program.

CURRICULUM STANDARDS, TEC 31.0

Section 1.
The program of preparation for the further endorsement for classroom teaching in the middle grades of a certificate valid for classroom teaching at the high school level shall include the completion of the following:

(1) One of the middle grade teaching fields, with a minimum of 24 semester hours of credit, as specified in the curriculum standards for the certification of teachers in the middle grades.

(2) A course in the teaching of reading with emphasis on reading in the content areas, reading as a developmental process, readability of materials, and diagnostic and remedial techniques.

(3) A course in human growth and development which provides for a depth of study with emphasis on pupils in the age range encompassed by the middle grades.

(4) A course dealing with the middle grades to include a basic study of the philosophy, organizational patterns, and curriculum concepts relating to the middle grades.

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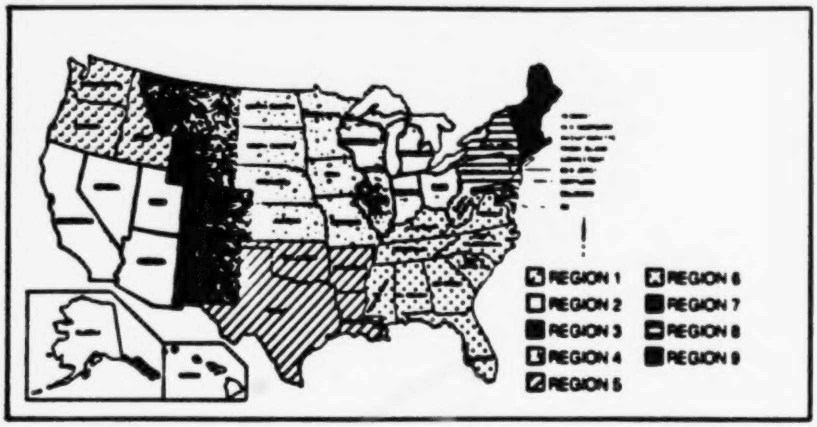
APPENDIX IX

DATABANK

Education Week, April 24, 1985

Teacher Supply/Demand by Field and Region



These tables are based on a survey of 60 university teacher-placement officials representing all regions of the country. It is an opinion survey, reflecting the best estimates of the respondents, and was conducted by James N. Akin, of the Career Planning and Placement Center at Kansas State University. Mr. Akin has conducted similar surveys each year since 1976 for the American Association for School, College, and University Staffing, a 700-member organization of placement and personnel officials.

REGION Field	Alaska	Hawaii	1	2	3	4	5	6	7	8	9	Continental United States 1985	1984	1983	1982	1981	1980	1976
Agriculture	3.00	3.00	3.80	2.80	2.67	3.33	3.67	3.00	3.80	2.88	—	3.11	3.44	4.02	4.38	4.46	4.73	4.06
Art	2.00	2.00	1.80	1.80	1.80	2.43	3.13	2.00	1.83	2.00	2.80	2.04	1.89	1.92	1.84	2.00	2.46	2.14
Bilingual Education	3.00	4.00	4.80	4.14	3.75	4.25	4.29	4.67	4.75	3.80	3.80	4.12	4.04	3.83	4.13	4.10	4.21	—
Business Education	3.00	3.0	2.80	3.80	3.33	3.38	3.00	3.25	3.50	4.00	3.80	3.32	3.11	4.34	3.47	3.80	3.80	3.10
Computer Programming	3.00	—	4.40	4.80	4.00	4.17	4.80	4.75	4.67	4.33	4.60	4.37	4.34	—	—	—	—	—
Counselor-El.	2.00	4.00	4.50	2.43	3.10	3.67	2.86	2.50	3.67	2.50	2.83	3.06	2.80	3.00	2.72	3.05	3.38	3.15
Counselor-Sec.	4.00	4.00	4.50	2.57	3.10	3.83	2.71	2.50	4.00	2.50	2.67	3.08	2.67	2.83	2.79	3.13	3.76	2.88
Data Processing	3.00	3.00	4.80	4.33	4.00	4.20	4.20	4.50	4.33	4.25	4.80	4.30	4.16	4.38	3.86	4.35	—	—
Driver's Ed.	3.00	3.00	3.20	2.00	3.00	2.20	2.57	2.67	2.80	2.50	2.67	2.65	2.61	2.04	2.77	2.67	2.88	2.44
Elementary-Primary	3.00	2.00	2.40	3.29	2.67	2.00	3.25	3.00	1.83	2.50	2.00	2.57	2.13	2.11	2.02	2.24	2.77	2.78
Elementary-Inter.	3.00	2.00	2.40	3.29	2.67	2.00	3.25	2.80	2.33	2.50	1.80	2.53	2.20	2.11	2.28	2.86	2.84	1.90
English	4.00	4.00	3.10	3.14	2.79	3.50	3.75	3.25	3.33	2.88	2.80	3.14	3.13	2.80	3.21	3.37	3.51	2.05
Health Ed.	2.00	2.00	1.40	1.80	2.80	2.67	2.13	1.33	2.00	2.25	2.50	2.00	1.90	1.76	1.90	2.94	2.17	2.77
Home Economics	4.00	3.00	3.33	4.00	3.13	2.80	2.80	2.50	2.67	2.67	2.33	2.79	2.43	2.44	2.43	2.64	2.85	2.82
Industrial Arts	3.00	4.00	3.67	3.60	2.86	3.60	4.00	4.00	3.00	4.38	4.33	3.65	3.90	3.96	4.38	4.72	4.77	4.22
Journalism	3.00	3.00	1.75	3.33	3.33	3.50	2.63	1.75	3.33	2.80	2.00	2.74	2.60	2.63	2.61	2.77	2.58	2.86
Language-French	3.00	3.00	3.25	2.57	3.50	3.57	3.57	4.00	4.00	3.00	2.20	3.31	3.00	2.59	2.49	2.59	2.80	2.15
Language-German	3.00	3.00	3.00	2.43	3.60	3.57	3.14	4.00	3.33	3.00	2.20	3.11	3.08	2.51	2.46	2.58	2.70	2.03
Language-Spanish	3.00	3.00	3.80	2.71	3.40	3.43	3.75	5.00	4.17	3.13	2.40	3.43	3.16	2.77	2.88	2.85	3.34	2.47
Library Science	4.00	4.00	3.00	3.00	3.50	3.86	4.00	3.75	3.50	3.00	3.60	3.40	3.30	3.08	3.12	3.31	3.58	—
Mathematics	3.00	4.00	4.60	4.86	4.29	4.43	5.00	4.80	5.00	4.88	4.80	4.71	4.78	4.75	4.81	4.79	4.80	3.86
Music-Instr.	3.00	3.00	4.20	3.29	3.80	3.71	3.38	3.80	3.00	2.17	3.80	3.30	3.35	2.97	3.30	3.30	3.06	3.03
Music-Vocal	4.00	2.00	4.60	2.71	3.80	3.14	4.57	2.80	3.33	2.17	2.80	3.10	2.80	2.60	2.85	3.05	3.32	3.00
Physical Education	2.00	2.00	1.20	1.67	1.42	1.33	1.88	2.00	2.00	2.38	1.60	1.75	1.61	1.84	1.72	1.80	1.82	1.74
Psychologist (school)	4.00	—	4.00	3.80	3.38	4.20	3.60	3.75	3.83	3.67	3.50	3.60	3.85	3.19	3.86	3.70	3.87	3.08
Science-Biology	3.00	4.00	3.20	3.29	3.25	3.20	3.88	3.80	3.67	3.75	4.20	3.83	3.40	4.10	3.86	3.89	3.90	2.97
Science-Chemistry	4.00	4.00	4.20	4.43	4.08	4.14	4.83	4.80	4.67	4.80	4.80	4.42	4.25	4.30	3.13	4.42	4.18	3.72
Science-Earth	2.00	4.00	3.80	3.43	3.40	3.80	4.00	4.00	3.50	4.13	4.80	3.79	3.70	3.80	3.89	4.08	3.64	3.44
Science-General	3.00	4.00	3.40	3.29	3.50	3.29	3.83	3.75	3.67	3.88	4.20	3.85	3.85	—	—	4.31	4.10	—
Science-Physics	4.00	4.00	4.40	4.43	4.42	4.71	4.43	4.80	4.83	4.83	4.80	4.57	4.45	4.46	4.41	4.56	4.29	4.04
Social Science	3.00	2.00	1.40	2.00	2.40	2.00	2.57	1.75	2.17	2.14	2.80	2.17	1.91	1.75	2.11	2.06	1.88	1.51
Social Worker (school)	—	—	2.67	2.67	3.50	3.00	2.40	1.80	3.40	2.75	3.00	2.81	2.30	2.27	2.34	—	—	—
Speech	4.00	2.00	2.20	2.80	3.13	2.86	2.75	2.33	3.17	3.29	3.67	2.91	2.70	2.51	2.76	2.85	2.80	2.46
Special-ED (PSA)	4.00	3.00	4.40	4.20	4.80	4.00	4.14	4.20	3.83	4.00	2.80	4.02	3.94	4.08	3.98	4.22	4.36	3.42
Special-Gifted	5.00	3.00	3.25	3.67	4.13	4.50	4.00	4.33	4.25	3.80	3.60	3.85	3.74	3.80	3.81	4.10	4.33	3.85
Special-LD	4.00	4.00	3.60	4.00	4.80	4.14	3.63	4.40	4.83	4.00	2.80	3.86	3.88	4.08	4.20	4.47	4.48	4.00
Special-MR	4.00	3.00	3.80	4.00	4.80	3.43	3.57	4.00	3.33	4.33	3.00	3.78	3.86	3.71	3.84	4.14	4.23	2.87
Special-Multi. Handi.	4.00	4.00	4.00	4.00	4.00	4.80	4.17	4.00	3.80	4.00	3.00	3.94	3.77	3.82	3.93	4.13	3.87	—
Special-Reading	4.00	3.00	3.80	3.14	3.75	3.17	3.71	3.75	3.50	3.50	2.50	3.39	3.48	3.39	3.73	4.21	2.23	3.96
Speech Path./Audiology	3.00	—	3.38	3.67	4.67	4.00	4.20	4.50	4.33	3.83	3.75	4.01	3.83	3.62	3.95	4.27	4.17	3.68
COMPOSITE	3.20	[illegible]	[illegible]	3.24	[illegible]	3.40	[illegible]	3.49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—

[illegible]

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APPENDIX X

Analysis of New Teachers:

New teacher status is defined and classified on the Professional Staff Data (PSD) form administered annually by the Kentucky Education Department. The four categories include first time teachers, teachers returning to the profession, transfer teachers from another school system, and teachers classified as other. First-time teachers, returning teachers, and those classified as other generally represent a major segment of the new hires. To ascertain the level of experience in this population group, the records of new teachers were examined.

TABLE A1

ACTUAL OPENINGS FILLED
BY NEW TEACHERS WITH LESS THAN
ONE YEAR'S EXPERIENCE
(ELEMENTARY LEVEL)

Year	No. of Vacancies	Percent	Projected Rate
1980-81	345	52.43	
1981-82	218	46.98	
1982-83	240	47.90	
1983-84	270	52.33	
1984-85	415	58.70	
			53.43

TABLE A2

ACTUAL OPENINGS FILLED
BY NEW TEACHERS WITH LESS THAN
ONE YEAR'S EXPERIENCE
(SECONDARY LEVEL)

Year	No. of Vacancies	Percent	Projected Rate
1980-81	302	43.58	
1981-82	191	43.41	
1982-83	232	46.49	
1983-84	280	48.70	
1984-85	387	55.21	
			49.41

TABLE A3

ACTUAL OPENINGS FILLED BY NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE (SPECIAL AREAS)

Years Area	1980-81	1981-82	1982-83	1983-84	1984-85
Elem. P.E.	16	7	13	20	22
Elem. Art	6	4	3	7	13
Elem. Music	33	25	27	29	24
Special. Ed.	309	240	203	234	196
Vocational Ed.	86	59	79	77	74
Total	450	335	325	367	329

TABLE A4

ACTUAL PERCENT OF VACANCIES FILLED BY NEW TEACHERS WITH LESS THAN ONE YEAR EXPERIENCE (SPECIAL AREA)

Years Area	1980-81	1981-82	1982-83	1983-84	1984-85	Projected
Elem. P.E.	57.14	50.00	61.91	60.61	66.67	61.12
Elem. Art	60.00	44.44	33.33	38.89	65.00	52.50
Elem. Music	54.10	47.17	61.36	59.18	53.33	54.60
Special Ed.	54.98	57.69	52.05	60.94	58.51	57.25
Vocational Ed.	43.43	42.45	50.64	50.33	58.27	51.34

When examining the actual openings filled by new teachers with less than one year's experience by teaching area, steady increases can also be observed. From the 1980-1981 academic year to the 1982-83 academic year, less than half of the vacancies were filled by less experienced teachers. However, during the last two years, the percent of new hires with less than one year's experience increased to 53.07 percent in 1983-84 and then to 57.22 percent in 1984-85. This would suggest that although approximately half of the vacancies are filled with experienced teachers, the number and percent of the vacancies filled by teachers with less than one year's experience has steadily increased. Table A5 represents the actual openings filled by new teachers with less than one year's experience. The actual percentage of vacancies filled by new teachers with less than one year's experience is represented in Table A6.

TABLE A5
ACTUAL OPENINGS FILLED
BY NEW TEACHERS WITH LESS THAN
ONE YEAR'S EXPERIENCE BY TEACHING AREA

Year Area	1980-81	1981-82	1982-83	1983-84	1984-85
El. Self Cont.	345	218	240	270	415
Other Self Cont.	13	7	9	8	8
Special Ed.	309	240	203	234	196
Science	45	27	39	49	75
Math	50	39	50	71	103
Soc. Sci.	36	21	17	26	33
English	56	34	43	41	65
Foreign Lang.	5	4	7	7	9
Music	52	38	42	45	37
Art	17	11	8	15	26
Dist. Ed.	4	3	1	4	5
Business	13	6	17	14	21
Indust. Arts	27	15	14	15	21
Agriculture	9	10	12	6	5
Health/PE	43	19	34	51	55
Home Ec.	13	7	26	31	15
Other	49	34	22	16	21
TOTAL	1,086	733	784	903	1,110

TABLE A6

ACTUAL PERCENTAGE VACANCIES FILLED BY NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE BY TEACHING AREA

Year Area	1980-81	1981-82	1982-83	1983-84	1984-85	Projected
El. Self Cont.	52.43	46.98	47.90	52.33	58.70	53.43
Other Self Cont.	52.00	43.75	47.37	50.00	53.33	50.30
Spec. Ed.	54.98	57.69	52.05	60.94	58.51	57.25
Science	38.79	43.55	53.43	53.26	66.37	54.90
Math	41.67	44.83	53.19	51.08	61.68	53.29
Soc. Sci.	46.75	45.65	40.48	50.98	44.59	45.42
English	40.69	41.98	36.44	38.67	46.43	42.24
Foreign. Lang.	31.25	40.00	30.44	25.93	25.00	29.14
Music	54.74	46.34	61.76	59.21	52.86	54.45
Art	56.67	45.83	33.33	40.54	65.00	52.46
Dist. Ed.	66.67	42.86	16.67	57.14	50.00	47.50
Business	32.50	31.58	58.62	51.85	56.76	48.89
Industrial Arts	44.26	34.09	45.16	40.54	58.43	47.94
Agriculture	52.94	66.67	63.16	66.67	83.33	70.75
Health/PE	58.11	50.00	59.65	62.19	67.90	61.65
Home Ec.	32.50	41.18	50.00	54.38	57.69	49.79
Other	49.00	45.33	50.00	42.11	61.76	52.67

TABLE A7

PROJECTED OPENINGS TO BE FILLED BY NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE BY TEACHING AREA

Year Area	1985-86		1986-87		1987-88		1988-89		1989-90	
	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
El. Self. Cont.	550	635	395	456	347	401	316	365	278	321
Other Self. Cont.	31	47	3	2	3	4	2	3	4	4
Special Ed.	226		233		233		233		233	
Science	- 77	12	25	27	31	34	25	28	32	33
Math	- 70	39	35	39	42	47	36	40	45	50
Soc. Sci.	60	13	7	10	12	13	8	9	14	16
English	- 85	14	22	25	29	32	23	25	31	35
Foreign Lang.	- 18	- 9	5	6	6	6	5	6	6	6
Music	7	26	44	45	41	43	39	40	38	39
Art	- 31	-14	19	20	19	20	17	18	17	18
Dist. Ed.	6	10	2	3	3	2	2	2	3	3
Business	- 53	-13	4	4	6	7	4	5	8	9
Indust. Arts	- 13	13	11	12	12	14	11	12	13	14
Agriculture	- 12	6	3	3	4	4	2	3	4	5
Health/P.E.	- 52	1	35	36	37	37	30	31	32	34
Home Ec.	- 5	21	9	9	10	12	9	10	11	12
Other	- 42	36	3	3	9	9	3	5	11	13
Total										

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Supply Vs. Demand of Entrance Level Teachers:

Historically, data have indicated that new teachers with less than one year's experience have generally represented less than half of the supply of new teachers filling teacher vacancies in the schools. Over the last four years, the actual openings filled by new teachers with less than one year's experience has gradually increased from approximately 50 percent during the 1981-82 academic year to approximately 57 percent during the 1984-85 period. Should this trend continue and the demand for new teachers with less than one year's experience increase, problems may occur since productivity of degrees in teacher education programs and enrollments are reported on the decline.

TABLE A8

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
(ELEMENTARY LEVEL K-6)

Year	Openings	Supply	Shortage	Surplus
1983-84	270	1173	-	903
1984-85	415	1068	-	653

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	550	635	962	-	-	412	327
1986-87	395	456	919	-	-	524	463
1987-88	347	401	877	-	-	530	476
1988-89	316	365	835	-	-	519	470
1989-90	278	321	792	-	-	514	471

TABLE A9

SUPPLY VS DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
(SECONDARY LEVEL 7-12)

Year	Openings	Supply	Shortage	Surplus
1983-84	280	777	-	497
1984-85	387	702	-	315

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	177	206	554	-	-	377	348
1986-87	124	142	511	-	-	387	369
1987-88	159	183	469	-	-	310	286
1988-89	130	149	426	-	-	296	277
1989-90	172	199	383	-	-	211	184

TABLE A10

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
SPECIAL AREA: (EL. P.E.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	El. P.E.	20	112	-	92
1984-85		22	96	-	74
1985-86		32	73	-	41
1986-87		24	66	-	42
1987-88		21	59	-	38
1988-89		20	52	-	32
1989-90		17	45	-	28

TABLE A11

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
SPECIAL AREA: (EL. ART)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	El. Art	7	35	-	28
1984-85		13	26	-	13
1985-86		9	21	-	12
1986-87		16	19	-	3
1987-88		14	17	-	3
1988-89		13	15	-	2
1989-90		12	13	-	1

TABLE A12

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
SPECIAL AREA: (EL. MUSIC)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	El. Music	29	117	-	88
1984-85		24	88	-	64
1985-86		34	70	-	36
1986-87		37	64	-	27
1987-88		33	57	-	24
1988-89		31	50	-	19
1989-90		29	43	-	14

TABLE A13

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
SPECIAL AREA: (SPEC. ED.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Spec. Ed.	234	455	-	221
1984-85		196	412	-	216
1985-86		226	297	-	71
1986-87		233	265	-	32
1987-88		233	233	-	-
1988-89		233	201	32	-
1989-90		233	170	63	-

TABLE A14

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
SPECIAL AREA: (VOCATIONAL ED.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-83	Voc. Ed.	77	283	-	206
1984-85		74	233	-	159
1985-86		51	190	-	139
1986-87		32	176	-	144
1987-88		44	161	-	117
1988-89		35	146	-	111
1989-90		48	132	-	84

TABLE A15

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (DISTRIBUTIVE ED.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Dist. Ed.	4	7	-	3
1984-85		5	4	1	-

	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	6	10	4	2	6	-	-
1986-87	2	3	3	1	-	-	-
1987-88	3	3	3	-	-	-	-
1988-89	2	2	3	-	-	1	1
1989-90	3	3	2	1	1	-	-

TABLE A16

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (BUSINESS)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Bus.	14	111	-	97
1984-85		21	89	-	68

	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-53	-13	70	-	-	123	83
1986-87	4	4	63	-	-	59	59
1987-88	6	7	56	-	-	50	49
1988-89	4	5	49	-	-	45	44
1989-90	8	9	42	-	-	34	33

TABLE A17

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (AGRICULTURE)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Agri.	6	63	-	57
1984-85		5	64	-	59

	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-12	6	46	-	-	58	40
1986-87	3	3	41	-	-	38	38
1987-88	4	4	37	-	-	33	33
1988-89	2	3	32	-	-	30	29
1989-90	4	5	28	-	-	24	23

TABLE A18

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (SOC. SCI.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Soc. Sci.	26	161	-	135
1984-85		33	119	-	86

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-60	13	96	-	-	156	83
1986-87	7	10	87	-	-	80	77
1987-88	12	13	77	-	-	65	64
1988-89	8	9	68	-	-	60	59
1989-90	14	16	60	-	-	46	44

TABLE A19

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (ENGLISH)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	English	41	119	-	78
1984-85		65	136	-	71

	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-85	14	94	-	-	170	80
1986-87	22	25	85	-	-	63	60
1987-88	29	32	75	-	-	46	43
1988-89	23	25	66	-	-	43	41
1989-90	31	35	57	-	-	26	22

TABLE A20

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (HEALTH-PHY. ED.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Health/PE	51	275	-	224
1984-85		55	236	-	181

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-52	1	180	-	-	232	179
1986-87	35	36	162	-	-	127	126
1987-88	36	37	145	-	-	109	108
1988-89	30	31	127	-	-	97	96
1989-90	32	34	110	-	-	78	76

TABLE A21

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (OTHER)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Other	16	38	-	22
1984-85		21	12	9	-

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-42	36	15	-	21	57	-
1986-87	3	3	14	-	-	11	11
1987-88	9	9	12	-	-	3	3
1988-89	3	5	11	-	-	8	6
1989-90	11	13	9	2	4	-	-

TABLE A22

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (SCIENCE)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Science	49	84	-	35
1984-85		75	81	-	6

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-77	12	59	-	-	136	47
1986-87	25	27	53	-	-	28	26
1987-88	31	34	48	-	-	17	14
1988-89	25	28	42	-	-	17	14
1989-90	32	33	36	-	-	4	3

TABLE A23

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (HOME ECONOMICS)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Home Ec.	31	35	-	4
1984-85		15	39	-	24

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-5	21	27	-	-	32	6
1986-87	9	9	25	-	-	16	16
1987-88	10	12	22	-	-	12	10
1988-89	9	10	19	-	-	10	9
1989-90	11	12	17	-	-	6	5

TABLE A24

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (MATH)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Math	71	81	-	10
1984-85		103	91	12	-

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-70	39	63	-	-	133	24
1986-87	35	39	57	-	-	22	18
1987-88	42	47	51	-	-	9	4
1988-89	36	40	45	-	-	9	5
1989-90	45	50	39	6	11	-	-

TABLE A25

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (ART)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Art	15	71	-	56
1984-85		26	53	-	27

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-31	-14	43	-	-	74	57
1986-87	19	20	38	-	-	19	18
1987-88	19	20	34	-	-	15	14
1988-89	17	18	30	-	-	13	12
1989-90	17	18	26	-	-	9	8

TABLE A26

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (FOREIGN LANG.)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Foreign Lang	7	17	-	10
1984-85		9	22	-	13

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-18	-9	15	-	-	33	24
1986-87	5	6	13	-	-	8	7
1987-88	6	6	12	-	-	6	6
1988-89	5	6	10	-	-	5	4
1989-90	6	6	9	-	-	3	3

TABLE A27

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (INDUSTRIAL ARTS)

Year	Area	Openings	Supply	Shortage	Surplus
1983-83	Ind. Arts	15	81	-	66
1984-85		21	61	-	40

	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	-13	13	49	-	-	62	36
1986-87	11	12	44	-	-	33	32
1987-88	12	14	39	-	-	27	25
1988-89	11	12	35	-	-	24	23
1989-90	13	14	30	-	-	17	16

TABLE A28

SUPPLY VS. DEMAND
NEW TEACHERS WITH LESS
THAN ONE YEAR'S EXPERIENCE
TEACHING AREA: (MUSIC)

Year	Area	Openings	Supply	Shortage	Surplus
1983-84	Music	45	181	-	136
1984-85		37	136	-	99

	Openings			Shortage		Surplus	
	Upper	Lower	Supply	Upper	Lower	Upper	Lower
1985-86	7	26	107	-	-	160	86
1986-87	44	45	99	-	-	55	54
1987-88	41	43	88	-	-	47	45
1988-89	39	40	77	-	-	38	37
1989-90	38	39	67	-	-	29	28

APPENDIX XI

Age By Totals of All Teachers Employed in Kentucky Public Schools

Age	1980-1981	1981-1982	1982-1983	1983-1984	1984-1985
20					2
21-25	372	736	1268	1241	1254
26-30	5298	5103	5157	4618	4285
31-35	8799	8555	8498	7952	7498
36-40	7187	7161	7196	7655	8417
41-45	5157	5135	5165	5500	5888
46-50	3721	3694	3683	3723	3985
51-55	3035	2957	2837	2881	2960
56-60	2255	2054	1845	1823	1856
61-65	1466	1198	929	887	822
65+	587	407	273	260	230
Unknown	946	757	674	1195	1018
Totals	38823	37757	37525	37735	38215
Mode:	31-35	31-35	31-35	31-35	36-40
Median:	36-40	36-40	36-40	36-40	36-40

*Excludes Unknown

APPENDIX XII

Average Teacher Salaries
Elementary, Secondary and Combined
Kentucky Public Schools

Year	Elementary	Secondary	Special Ed.
1980-81	$15,417	$16,846	$14,477
1981-82	16,971	18,420	14,960
1982-83	18,067	19,519	17,043
1983-84	19,338	20,801	18,339
1984-85	19,876	21,370	18,941
Mean:	$17,933.8	$19,391.2	$16,952

REPORT TO ALICE MCDONALD
SUPERINTENDENT OF PUBLIC INSTRUCTION

AND TO THE

KENTUCKY STATE BOARD OF EDUCATION

FROM

KENTUCKY COUNCIL ON TEACHER EDUCATION AND CERTIFICATION

Prepared by

Sidney Simandle, Executive Secretary of the Council

October 1985

> **Unless major changes are made in the structure of the teaching profession, so that teaching becomes an attractive career alternative for talented individuals, we will in a very few years face widespread shortages of qualified teachers. We will be forced to hire the least academically able students to fill these vacancies, and they will become the tenured teaching force for the next two generations of American school children.**
>
> --Beyond the Commission Reports: The Coming Crisis in Teaching, published by the Rand Corporation, July 1984

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Sidney Simandle, Executive Secretary of the Council

October 1985

The teacher shortage is here! While several projections within Kentucky and also nationwide point to the 1986-87 school term as the beginning of a statewide and nationwide teacher shortage, the Council on Teacher Education and Certification has received evidence that the teacher shortage has already begun in Kentucky and will be considerably widespread in 1986-87. The Council views this impending shortage as a crisis situation that requires the immediate attention of the Superintendent of Public Instruction, the State Board of Education, and the Kentucky General Assembly.

More than a year ago, the Council on Teacher Education and Certification, expressing a concern about the various predictions of a coming teacher shortage, activated a study Committee to Develop Contingency Plans for Possible Teacher Shortages. This study committee, chaired by Robert Gover, Superintendent of the Warren County Schools, has completed a very thorough analysis of the teacher shortage situation in Kentucky and in the nation which adds further confirmation to the fact of teacher shortage and suggests an array of possible actions which might be taken in advance as well as during a period of teacher shortage.

The Council has made a thorough study of this report at a special meeting held on October 11, 1985, and is herewith presenting its recommendations for action. The remainder of the report is presented in the form of specific issues or topics with a brief background and specific recommendations.

A. The Teacher Shortage is Here!

1. Sixty-six (66) emergency teaching certificates have been issued thus far for the 1985-86 school term in comparison with 8 for 1984-85 and 10 for 1983-84. Approximately 49 were issued for some phase of special education, but the others include elementary education, school librarian, mathematics, chemistry, physics, French, etc.

2. Information reported to the Council regarding Jefferson County, Fayette County, and Pike County--the three largest school districts in Kentucky--indicate that the former reservoir supply of unemployed, but certified teachers, has been exhausted. Furthermore, the supply of certified

personnel available for substitute teaching has been seriously depleted. This information was corroborated by other school superintendents and Council members reporting on the circumstances in their particular sections of the state.

3. It is noted that the elementary school pupil population is beginning to increase.

4. Generally speaking, the numbers and proportions of persons choosing to enter the college preparation programs for teaching continues to decline throughout the state although there are some exceptions.

5. There is a particular problem in recruiting minority students into teacher education programs and for employment in Kentucky schools (including the positions in industrial education).

(For more details, see the minutes of the October 11, 1985, meeting of the Kentucky Council on Teacher Education and Certification.)

B. Endorsement of Recommendations from the Rand Corporation Study

The Council calls attention to the publication entitled Beyond the Commission Reports: The Coming Crises in Teaching prepared by the prestigious Rand Corporation in which there is an analysis of the teaching profession accompanied by five major recommendations as being fundamental to the teaching profession. The Council notes that in Kentucky significant progress is being made with respect to one or more of these recommendations, but nevertheless, the Council endorses these five recommendations of the Rand Corporation for implementation in Kentucky.

RECOMMENDATION 1. Establish professionally competitive salaries[1] for teachers (starting salaries of $20,000 with career increases of up to $50,000).

RECOMMENDATION 2. Offer recruitment incentives[2] such as scholarships and forgivable loans for academically talented college students to enter teaching.

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[1] The recent publication of the Kentucky Education Association, How Kentucky Ranks, reveals that with respect to a comparison of average teacher salaries Kentucky has dropped from 30th to 35th place in the national ranking. One can only speculate whether the increase of 5% adopted for 1986-87 by the extraordinary 1985 session of the General Assembly will result in a higher or lower ranking at the end of another year.

[2] It is noted that the forgiveable loan provisions for recruiting teachers of science and mathematics has been very successful in Kentucky and will be continued. Also, it is noted that legislation passed in the extraordinary session of the General Assembly provides similar incentives for recruiting academically talented high school students to prepare for teaching.

RECOMMENDATION 3. Improve teacher education by making it more intellectually rigorous[1] and requiring internships[2] supervised by senior teachers before tenure is granted.

RECOMMENDATION 4. Improve working conditions by allowing paraprofessionals to assume the non-teaching duties now performed by teachers and by allowing teachers more time to teach, to prepare, and to share in instructional decision making.

RECOMMENDATION 5. Allow experienced teachers to assume responsibilities for supervising new teachers and for developing programs as they move up a more differentiated career ladder with specific evaluation and promotion points.

Elsewhere in the Rand Corporation study there are recommendations relating to the way professional teachers are constrained from delivering their best efforts. The Council has provided further emphasis of the language of the Rand report and has added the following recommendation.

RECOMMENDATION 6. Strategies include all the positive improvements suggested for enhancing working conditions and compensation for teachers. These improvements include, in addition to higher salaries, duty-free lunch periods and breaks, smaller class sizes, more teacher input in decision-making, adequate time and office space for lesson planning, elimination of school sanctioned non-instructional interruptions, unnecessary paper work, and greater respect for teachers as professionals on the part of administrators.

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[1] The requirement for admission to and retention in Kentucky teacher education programs have been upgraded considerably and will qualify as being intellectually rigorous. In addition, all of the undergraduate curricula for teacher preparation have been revised with the result that a stronger emphasis is being placed on specific preparation in the subjects to be taught. At the secondary level (9-12), the array of teaching specialties is being re-examined from the viewpoint of both simplifying and strengthening; for certification at the middle grade level (5-8), teachers will have concentration in two teaching fields; at the early elementary level (K-4), teachers will be prepared in at least one subject specialty as well as for early childhood education. Throughout all of the undergraduate programs stronger quality measures will be observed.

[2] In addition to clinical and field experiences prior to student teaching and an extended period of twelve weeks full-time supervised student teaching, Kentucky teachers are assisted by a one-year internship as a condition for continued certification. In addition, the plans initiated in 1984 through Senate Bill 364, with further revisions by the 1985 extraordinary session, provide for a program of evaluation and improvement for all professional personnel both before and after achieving tenure status.

C. A Continuing Statewide Recruitment Program for Teaching

Notwithstanding the continuing problems of salaries, working conditions, and other shortcomings often associated with teaching as an occupation, there are, nevertheless, many positive factors that should be publicized to recruit young people into the teaching profession. In particular, in view of the recent legislation affecting the working conditions of teachers with respect to class size, provisions for exceptional children, remediation programs, etc., efforts should be made to update the image of teaching as a profession in Kentucky and of the many sub-specialties within the teaching profession.

RECOMMENDATION 7. A statewide program should be mounted on the part of the State Department of Education, the Kentucky Education Association, other professional organizations, teacher education institutions, and the local school districts to portray the positive aspects of teaching as a career choice and to actively recruit young people into the preparation programs for teaching.

RECOMMENDATION 8. Amend the provisions for the scholarship-loan funds as authorized by the 1985 extraordinary session to extend the recruitment to the upper 25% of the high school graduating classes.[1]

RECOMMENDATION 9. Scholarship-loan funds should be provided for persons who are already prepared for teaching but who are unemployed because the teaching specialty or area of preparation does not match the current job market. Such scholarship-loans should be limited to situations where a local district is ready to employ the person upon completion of the needed retraining for the vacant position (and when fully certified personnal are not available. It is noted that the scholarship-loan provisions for recruiting persons into mathematics and science include provisions for retraining of teachers. The Council urges that the science-math program be continued, but that similar retraining provisions be implemented wherever there is a need regardless of the subject field or position.

RECOMMENDATION 10. Scholarship-loan funds, on a forgiveable basis, should be available for recruiting arts and sciences graduates who meet the admission and retention requirements for teacher education programs into the teaching profession by means of appropriate alternate training programs now being developed by the Kentucky colleges and universities.

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[1] Information coming to the Council is that the students ranking in the upper 10% of their graduating classes are already highly recruited by all of the other professional and collegiate opportunities. While teaching may get a fair share of these students through the scholarship-loan funds, the actual numbers will probably not be significant in terms of alleviating a teacher shortage. Consequently, the Council recommends that the scholarship-loan provisions be available to applicants who rank in the upper 25% of their graduating class.

RECOMMENDATION 11. For any teacher recruitment program by means of a scholarship-loan, on a forgiveable basis, do not disqualify out-of-state students. Perhaps many persons with an out-of-state residence can be attracted to permanent employment in Kentucky as teachers.

D. Strengthening the System of Ranking Teacher Qualifications

Although a study conducted by the Division of Teacher Education and Certification shows that very few graduate programs submitted for ranking purposes are unrelated to the teacher's previous preparation or to the teacher's current assignment, the Council on Teacher Education and Certification has expressed the intention to completely close any such gaps in the system. Furthermore, the Council has activated a study committee to review all graduate education for teachers to make certain that (1) there is a close relevance between the preparation and the teaching assignment, (2) that standards of quality are more specifically defined and more rigorously enforced, and (3) that the evidences of improvement and strengthening will be clearly apparent to the State Board of Education.

One phase of strengthening the ranking system and also for encouraging teachers to upgrade or retrain for positions of teacher shortage requires a statutory change in the ranking law. It is pointed out that teachers with the bachelor's degree usually need from 12 to 18 semester hours of additional credit to retrain for accepting a different position, but that there is no salary incentive for such additional training until an entire program of 30-32 semester hours of credit is completed. Accordingly, it is urged that the present ranks be broken into smaller steps.

RECOMMENDATION 12. It is recommended that an intermediate rank be established between a Rank 3 and a Rank 2 classification which would be based upon the completion of 15 semester hours of post bachelor's credit that would be applicable toward a planned fifth-year program or toward a master's degree acceptable for Rank 2.

It is further recommended that an intermediate rank be established between Rank 2 and Rank 1 based upon 15 semester hours of additional graduate preparation above and beyond the qualifications for a Rank 2 classification and applicable toward Rank 1.

E. Utilization of Retired Teachers During the Teacher Shortage

It is believed that several teachers who have retired could be persuaded to return to teaching on a fulltime or a part-time basis for a temporary period to help with the teacher shortage. Such instances should be limited to vacancies for which fully certified non-retired teachers are not available, and further limited to employment on a year-by-year basis without tenure, but without loss of benefits under the retirement system.

RECOMMENDATION 13. Amend the teacher retirement statutes to allow retired teachers to be recruited on a year-by-year basis to positions of teacher shortage with full pay for the position being served and without loss of benefits being received through the teacher retirement system.[1]

F. Temporary Certification Without the National Teacher Examinations

It is recalled that the Council on Teacher Education and Certification did a two-year preliminary study which orginated the recommendation that was finally implemented as Senate Bill 19, the teacher testing/internship program. Nevertheless, it is noted that because of the necessity to limit the number of test administrations there are a considerable number of persons not available for employment because they are waiting until the date of the next test administration. Rather than leave school positions vacant or filling them with emergency teaching personnel, it would be better to utilize these fully prepared teachers on a temporary basis until such time as the required written examinations can be completed.

RECOMMENDATION 14. In the event that a person who completes an out-of state teacher preparation program comes to Kentucky after the deadline date for taking the written tests, a temporary certificate may be issued for a period of up to six months, provided the prospective employer cannot otherwise fill the vacant position with a certified teacher. If the written tests are available during the period of the temporary certificate, the teacher shall take the tests. If the person successfully completes the written tests, the certificate shall be extended for the remainder of the year. In the event the person fails the examination, the temporary certificate shall be valid only for the current semester.

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[1] Teacher retirement is more like an annuity system and is definitely not a welfare system. The teachers in question have already earned the benefits that are being received and, consequently, should not be penalized if they are recruited to help in the time of teacher shortage. Without a change in the statute retired Kentucky teachers may teach fulltime in another state and continue to receive full retirement benefits, but may teach no more than half-time in Kentucky without losing benefits. Likewise, teachers who have retired from some other state may come to Kentucky and teach fulltime without penalty whereas our Kentucky retired teachers are limited to half-time.

G. Upgrading the Qualifications of the Pool of Available Substitute Teachers

Substitute teachers are paid on a salary scale that is considerably less than that paid to similarly qualified teachers hired on a fulltime basis even though the substitute teaching can be just as rigorous and just as important with respect to instruction on a day-for-day basis. In addition, the funds for the payment of substitute teaching must come from the local district current expense budget which provides no differential for the better qualified substitute teachers; consequently, it is much more expensive to the local district to call the substitute teachers with the better qualifications. The amount of substitute teaching has gradually increased over the years as a consequence of increased provisions for sick leave, personal leave days, emergency leave days, and professional leave time. The quality of instruction would be enhanced and the pool of better qualified substitute teachers could be enlarged if the districts could receive extra state funding to compensate for the differential due to qualifications and due to two different salary scales.

RECOMMENDATION 15. The Foundation Law should be amended to designate funds for substitute teaching and in a manner that provides payment on a pro rata basis equal to or nearly equal to what the substitute teacher would make if employed on a fulltime basis. As a desirable addition, school districts could be allocated a certain number of fulltime positions for substitute teaching staffed by persons who could be assigned other duties on those days when there was no call for substitute teaching. Such fulltime substitute teaching positions could be allocated on a formula related to the average need for substitute teachers.

H. A Statewide Teacher Placement Service

In view of the many separate school districts in Kentucky, it is very difficult for a teacher seeking employment to locate a district with a corresponding vacancy. This is particularly true for out-of-state teachers who would consider a move to Kentucky. It is just as difficult for a school district administrator with a vacancy to locate an unemployed teacher. There is need for a statewide placement service to provide the communication links necessary to help place the available teachers in the available positions. The result should cut down somewhat on the need for emergency teaching personnel and improve the recruitment of qualified personnel from out of state.

Just as important, it would provide a means of competing with out-of-state recruiters who try to lure the Kentucky graduates. For example, a recruiter from a large out-of-state school district can visit a Kentucky teacher education institution in February and offer a contract during an on-the-spot interview specifying salary and general working conditions. (The precise assignment to a particular school or grade level within the district is not specified at this time.) Most Kentucky school superintendents know that on an average a certain number of new teachers will be needed each year, but they have no way of knowing for which grade or subject until the actual vacancy occurs. Consequently, the Kentucky administrator cannot offer a prospective graduate a contract until much, much later in the school year in comparison with out-of-state recruiters.

RECOMMENDATION 16. That the Kentucky State Department of Education (or some other agency or organization) operate a state-wide teacher placement service funded by the Kentucky General Assembly to facilitate the recruitment and placement of teachers. The emphasis is to be upon placement of unemployed personnel rather than the relocation of employed personnel.

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